User’s Manual

ADSL2+ Powerline Router with 3-port Switch

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FCC Part 68

This equipment complies with Part 68 of the FCC Rules. On the bottom of this equipment is a label that contains the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. You must provide this information to the telephone company upon request.

The REN is useful to determine the quantity of devices you may connect to the telephone line and still have those entire devices ring when your number is called. In most, but not all areas, the sum of the REN of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If the modem causes harm to the telephone network, the telephone company may discontinue your service temporarily.
If possible, they will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible.
You will be advised of your right to file a complaint with the FCC.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this modem, please contact your dealer for repair/warranty information. The telephone company may ask you to disconnect this equipment from the network until the problem has been corrected or you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

FCC Part 15

The router generates and uses radio frequency energy. If it is not installed and used properly in strict accordance with the user's manual, it may cause interference with radio and television reception. The modem has been tested and found to comply with the limits for Class B computing devices in accordance with the specifications in Subpart B, Part 15 of the FCC regulations. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. FCC regulations require that shielded interface cables be used with your modem.
If interference does occur, we suggest the following measures be taken to rectify the problem:
1) Move the receiving antenna.
2) Move the modem away from the radio or TV.
3) Plug the modem into a different electrical outlet.
4) Discuss the problem with a qualified radio / TV technician.

CAUTION:
Changes or modifications not expressly approved by the party responsible for compliance to the FCC Rules could void the user's authority to operate this equipment.

Cable connections:
All equipment connected to this modem must use shielded cable as the interconnection means.

Notes:
Operation is subject to the following two conditions:
1) This device may not cause harmful interference, and
2) This device must accept any interference received including interference that may cause undesired operation.

Chapter 1 Introduction

The ADSL2+ Powerline Router provides home connectivity to an ADSL service provider network over an ADSL/Asynchronous Transfer Mode (ATM) physical layer. The router can run upstream maximum transmission rates of 2Mbps and downstream maximum transmission rates of 24Mbps. The actual rate depends on the copper category of your telephone wire, distance from the central office and the type of ADSL2+ service subscribed. Integrated with Powerline router, user can plug and play to connect with other powerline bridges. Though the existing home's power circuit, user can access the internet or share the data via the power line no more wires..

1.1 Overview

The Infineon Amazon Single-Chip ADSL2+ Router is optimized to address the growing demand for high-speed Internet access, and it does so as a single, highly-integrated and cost-effective solution. Integrated with Powerline 85M router, user can easy installs and transfers the data via the existing power circuit.

1.2 Features

- ADSL2/2+ Compliance
  - Compliant with ADSL standards
    Full-rate ANSI.413 Issue 2 , ITU G.dmt (G.992.1) , G.dmt bis (G.992.3) and G.adslplus(G.992.5) standards Splitter less ITU G.lite (G.992.2) specification Annex A (ADSL over POTS) and Annex B (ADSL over ISDN), compliant to ETSI TS 101 388
  - DMT modulation and demodulation
  - Full-rate adaptive modem
    Maximum downstream rate of 24 Mbps
    Maximum upstream rate of 2 Mbps
  - Tone detection for low power mode
  - Supports splitter less ADSL implementation
  - Interoperable with all major DSLAM equipment
- ATM Protocols
  - WAN mode support: PPP over ATM (RFC 2364) and PPP over Ethernet (RFC 2516)
  - LAN mode support: bridged/routed Ethernet over ATM (RFC 2684) and classical IP over ATM (RFC 1577)
  - Up to 15 VCs (virtual circuits)
  - ATM SAR (segmentation and reassembly)
  - ATM AALC (adaption layer type 5)
- Bridge Mode
  - Ethernet to ADSL self learning Transparent Bridging (IEEE 802.1D)
  - Supports up to 128 MAC learning addresses

- Router Mode
  - IP routing-RIPv2
  - Static routing
  - DNS Proxy
  - Dynamic DNS
  - DMZ
  - Port Forwarding
  - DHCP (dynamic host configuration protocol) server and client
  - NAT (network address translation)
  - ICMP (Internet control message protocol)
- Powerline Features
  - Data transfers at up to 85 Mbps over the household power circuit
  - Ranges of 200 meters
  - No need new wires for Home networking
  - Deliver the benefits of Ethernet without the wiring expense
  - High-speed Internet and DVD-quality video streaming
  - Use the home's existing powerline
  - Easy to install
  - Throughout the whole house, just use your power circuit to access the Internet or PC network
  - Orthogonal Frequency Division Multiplexing for high data reliability in noisy media conditions
  - 56-bits DES link encryption for security
- Security
  - Stateful packet inspection and filtering
  - Intrusion detection and protection
  - PAP (password authentication protocol)
  - CHAP (challenge authentication protocol)
  - Password protected system management
- Ethernet Interface
  - Compliant with IEEE 802.3 and 802.3u 10/100 Mbps
- HTTP Web-Based Management
  - Firmware upgrade by UI
  - Customizable Web pages
  - WAN and LAN side connection statistics
  - Configuration of static routes and routing table
  - Password protected access
  - Wireless LAN
  - System log

- Configuration of VCs (virtual circuits)

1.3 System Requirements

1) Personal computer (PC)
2) Pentium II 233 MHz processor minimum
3) 32 MB RAM minimum
4) 20 MB of free disk space minimum
5) Ethernet Network Interface Controller (NIC) RJ45 Port
6) Internet Browser

Chapter 2 Installation

This chapter offers information about installing your router. If you are not familiar with the hardware or software parameters presented here, please consult your service provider for the values needed.

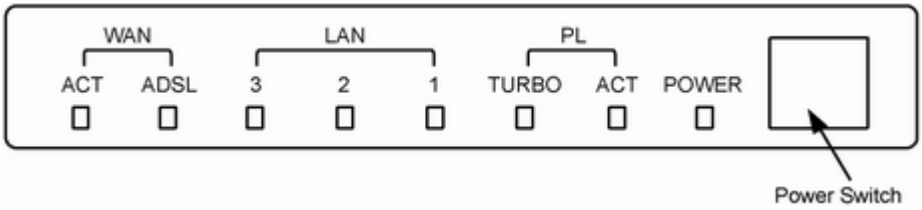
2.1 Checklist

Check the shipping box carefully to ensure that the contents include the items you ordered. If any of the items are missing or damaged, contact your local distributor. The contents of your carton may vary depending on your service provider.

Contents description

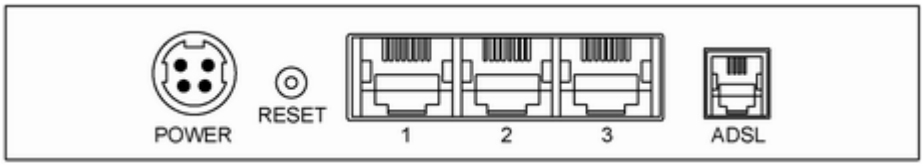
1) ADSL2+ Powerline Router for home/office use
2) ADSL2+ Powerline Router Installation and Operation Guide (this publication)
3) Power supply with 10VDC / 0.8 Ampere power adapter
4) ADSL cable RJ-11 telephone cable (6 ft)
5) Ethernet cable Ethernet category 5 twisted pair cable (6 ft)

2.2 The Front LEDs



LED		State	Description
POWER		ON	When the router power on.
PL	**ACT**	Flashing	When data transmit between Powerline bridges.
	TURBO	Flashing	When connect to other 85M Powerline bridge.
LAN 1-3		ON	Link
		Flashing	TX or RX activity
		OFF	No Link These four LAN (Local Area Network) ports are where you will connect networked devices, such as PCs, print servers remote hard drives, and anything else you want to put on your network.
WAN	**ADSL**	ON	"Showtime"-successful connection between ADSL modem and telephone company's network.
		Flashing	"Handshaking"-modem is trying to establish a connection to telco's network Modem is powered OFF ADSL Carrier Detect if LED is flash.
		OFF	
	ACT	Flashing	Data transmit between router and telco.

2.3 The Rear Ports



Connector	Description
POWER	Power connector with 10VDC/ 0.8 Ampere.
Reset Switch	The reset button, the router restore default settings when press until reboot.
LAN (1-3)	Router is successfully connected to a device through the corresponding port (1, 2, or 3). If the LED is flashing, the Router is actively sending or receiving data over that port.
ADSL Connector	The RJ-11 connector allows data communication between the modem and the ADSL network through a twisted-pair phone wire.

2.4 Hardware installation

This section describes how to connect and configure the ADSL2+ Powerline Router.

Step 1. Connect the ADSL Line

Connect the router directly to the wall jack using the included ADSL cable.

Step 2. Connect a Workstation to the Router's LAN port

There are two methods to connect the router and workstation. The one use the crossover Ethernet cable to connect directly between them. The other use straight Ethernet cable to connect router with hub (or switch), and then go to the workstation.

Step 3. Connect the Power Adapter to the Router

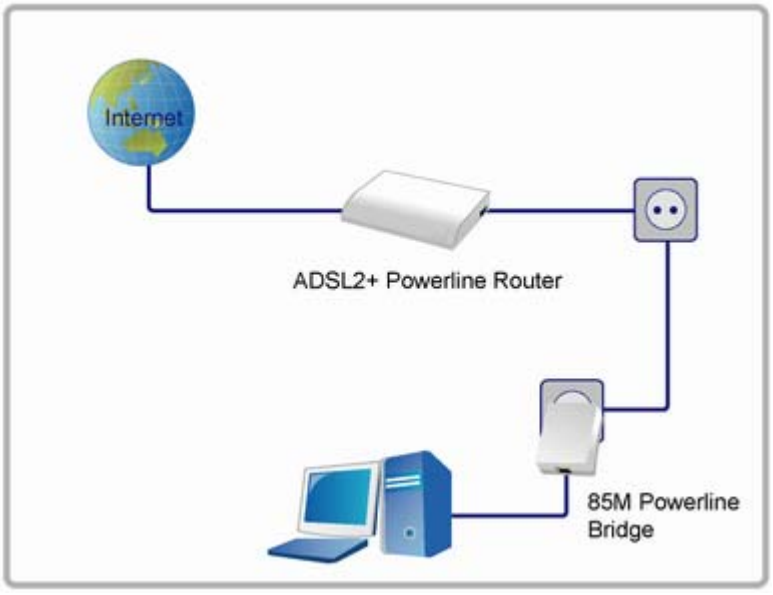
Connect the power adapter to the port labeled POWER on the rear panel of router.

Step 4. Connect All Cables to the Network

The procedure for connecting cables differs depending on whether or not your telephone equipment is connected to a POTS splitter.

Step 5. Connect to the other powerline bridges

You can connect ADSL2+ Powerline Router with other powerline 85M bridges via the existing power line at home.



POTS Splitter Configuration (ADSL over POTS)

A POTS splitter separates data signals from voice signals on your telephone line. The POTS splitter works by running a separate data line from the voice line, so that the ADSL router has a dedicated cable for data transmission. Figure 2-4.1 and 2-4.2 shows how to connect all cables to the Router.

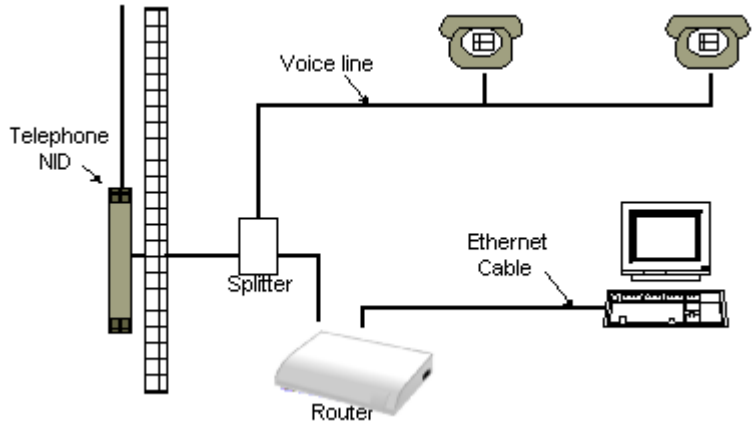


Figure 2-4.1 Router Connected through a POTS Splitter

Note: The POTS splitter may also be installed on the outside of the house adjacent to the telephone network interface device (NID).

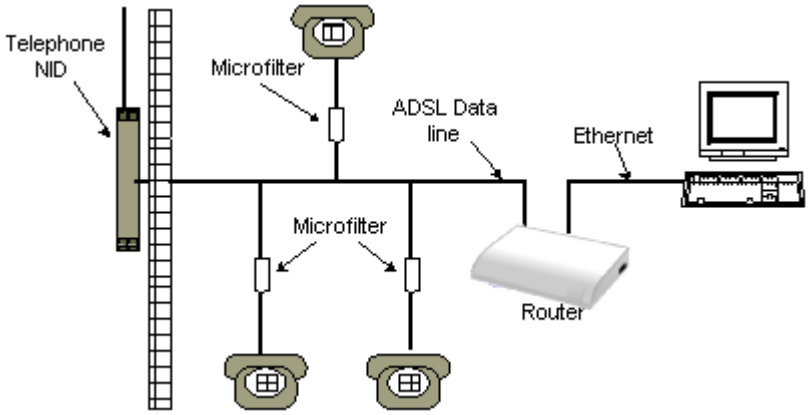


Figure 2-4.2 Router Connected through several micro-filters

ISDN Splitter Configuration (ADSL over ISDN)

A ISDN splitter separates ADSL signals from ISDN signals on your ISDN telephone line. The ISDN splitter works by running a separate ADSL line from the ISDN line, so that the ADSL router has a dedicated cable for data transmission.

Figure 2-4.3 shows how to connect all cables to the Router.

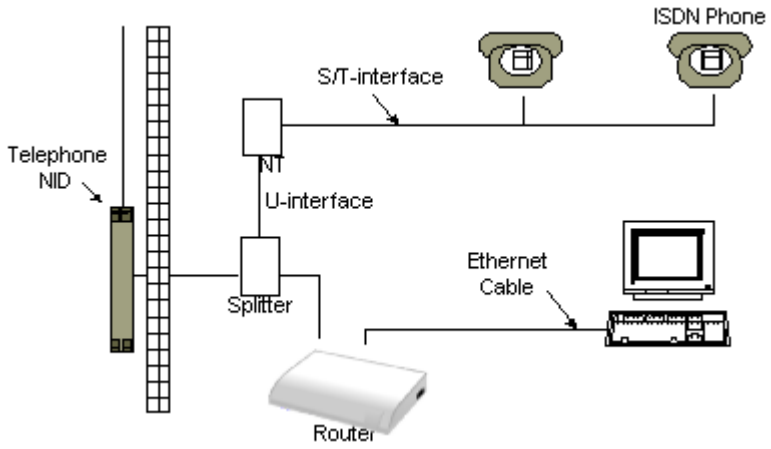


Figure 2-4.3 Router Connected through an ISDN Splitter

Note: The ISDN splitter may also be installed on the outside of the house adjacent to the telephone network interface device (NID).

Chapter 3 Configuration

3.1 Determine your connection settings

Before you configure the router; you need to know the connection information supplied by your ADSL service provider.

3.2 Connecting the ADSL Router to your network

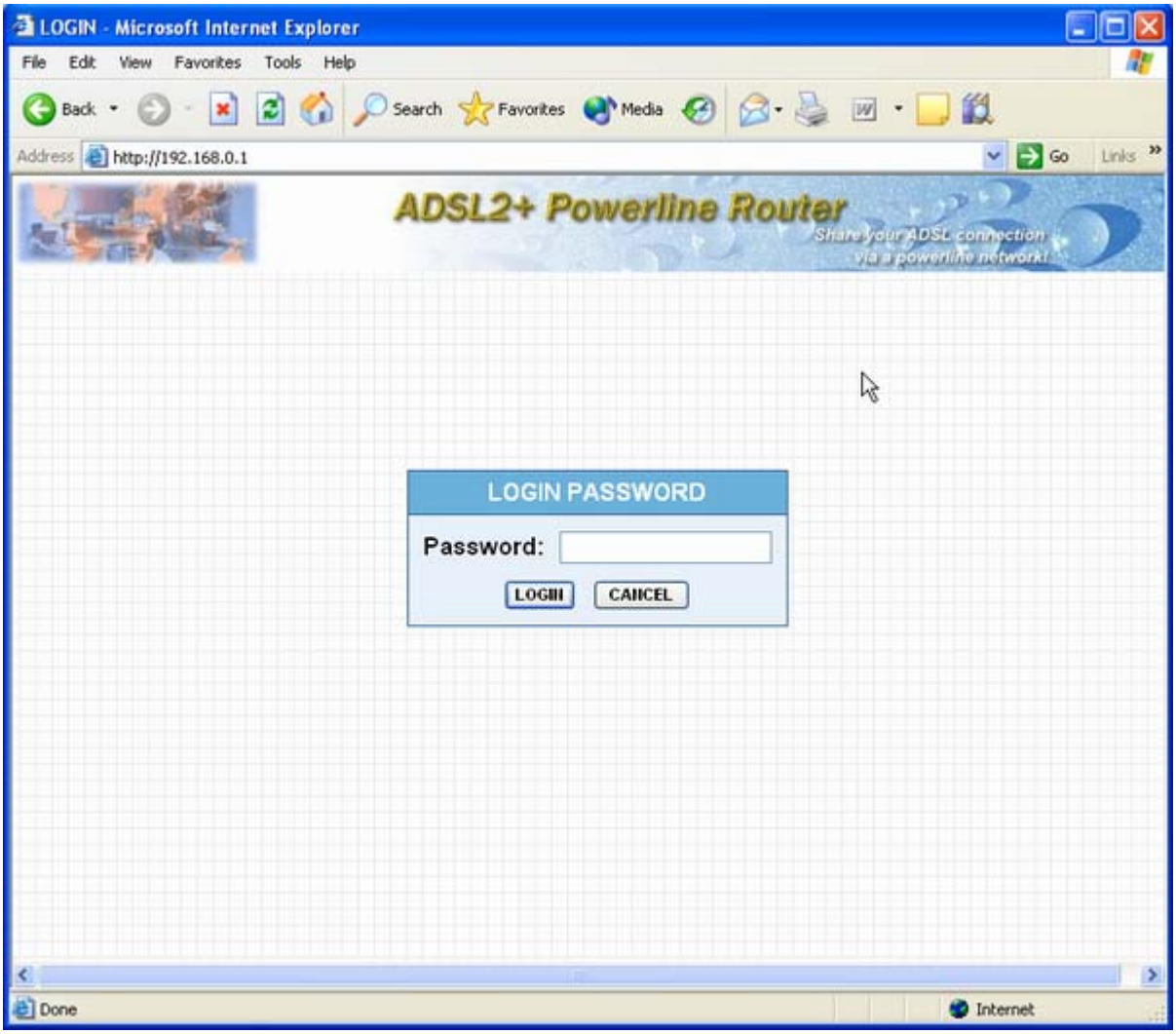
Unlike a simple hub or switch, the setup of the ADSL Router consists of more than simply plugging everything together.

Because the Router acts as a DHCP server, you will have to set some values within the Router, and also configure your networked PCs to accept the IP Addresses the Router chooses to assign them. Generally there are several different operating modes for your applications. And you can know which mode is necessary for your system from ISP. These modes are router, bridge, PPPoE+NAT and NAT and PPPoA+NAT.

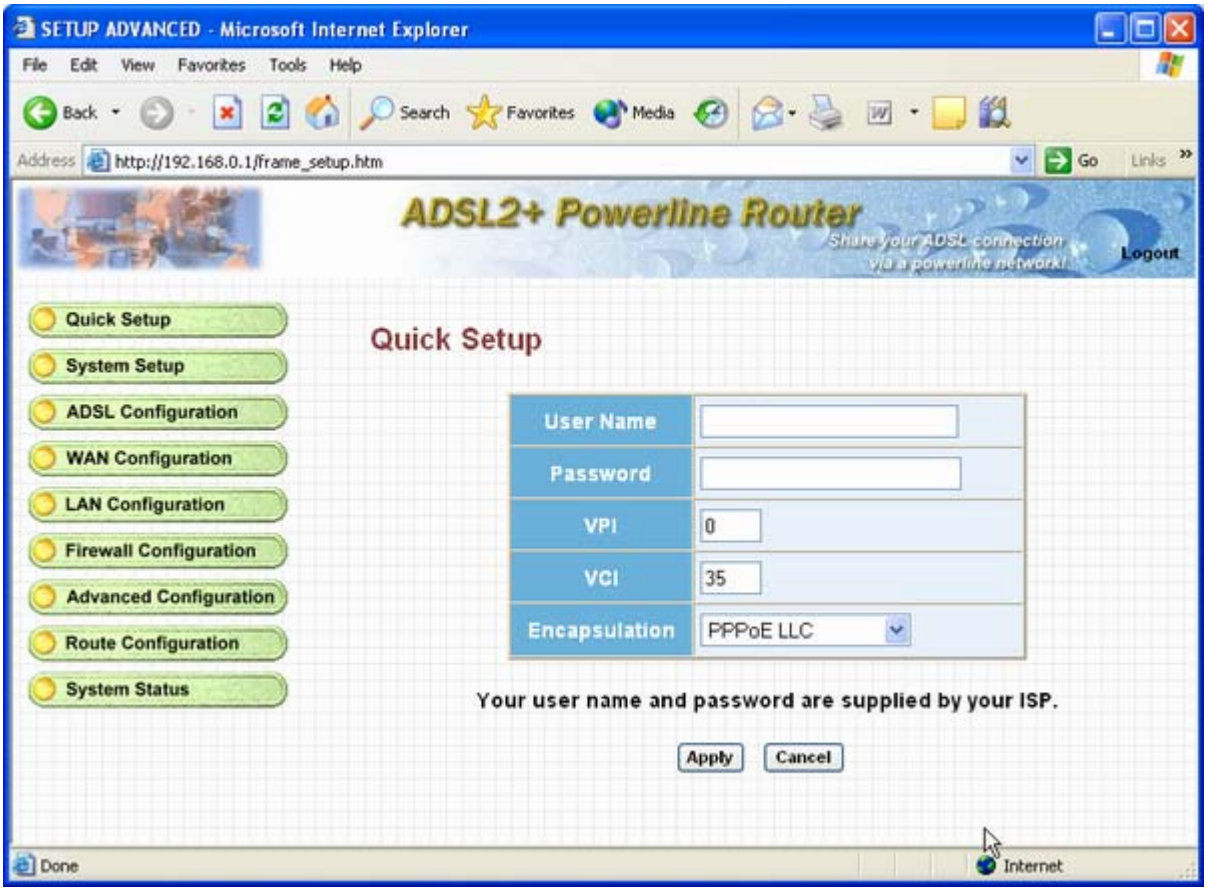
3.3 Configuring with Web Browser

It is advisable to change the administrator password to safeguard the security of your network.

To configure the router, open your browser, type '**http://192.168.0.1**' into the address bar and click 'Go' to get to the login page. Save this address in your Favorites for future reference.

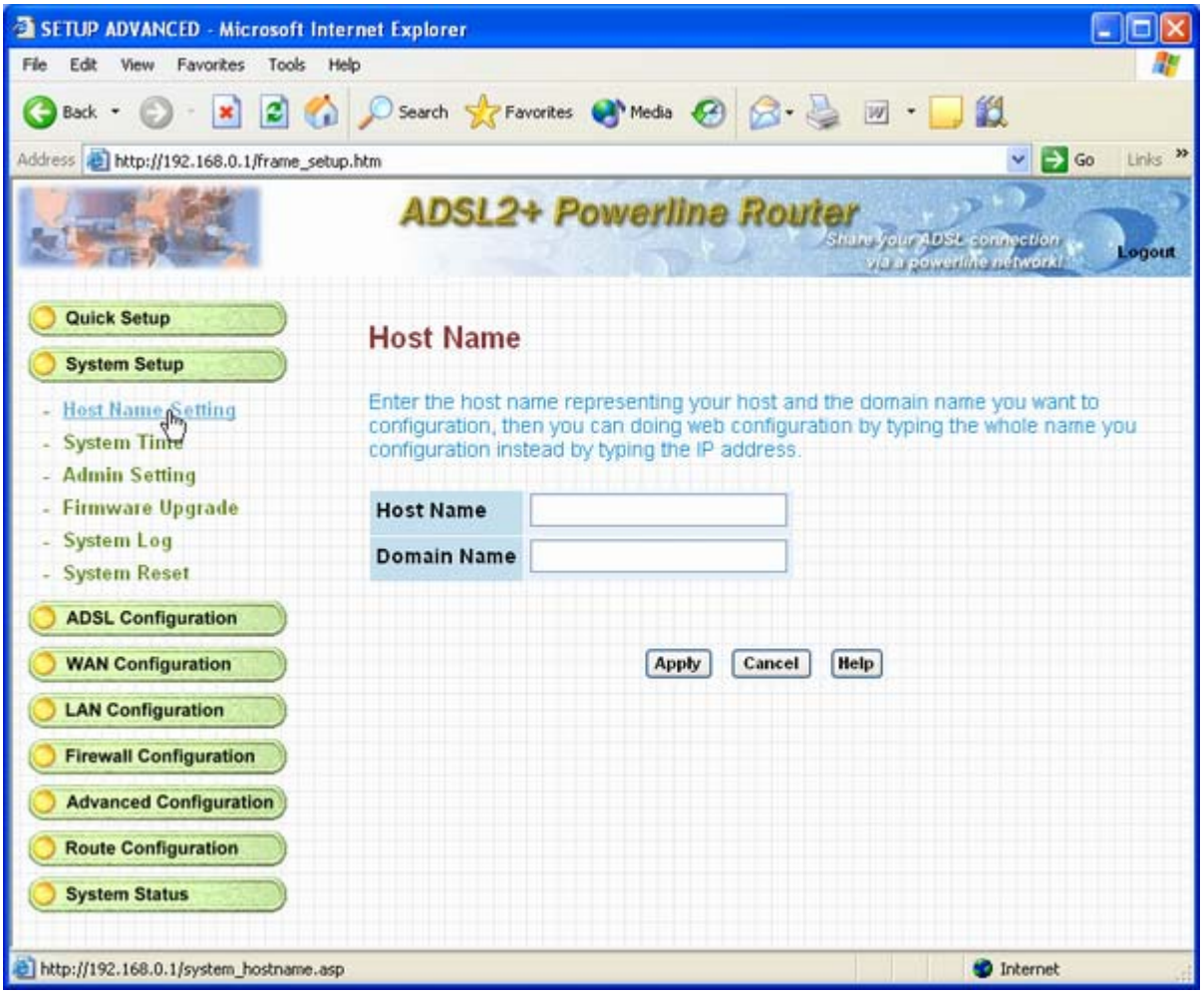


At the Password prompt, type '**admin**'. You can change these later if you wish. Click **'LOGIN**'.



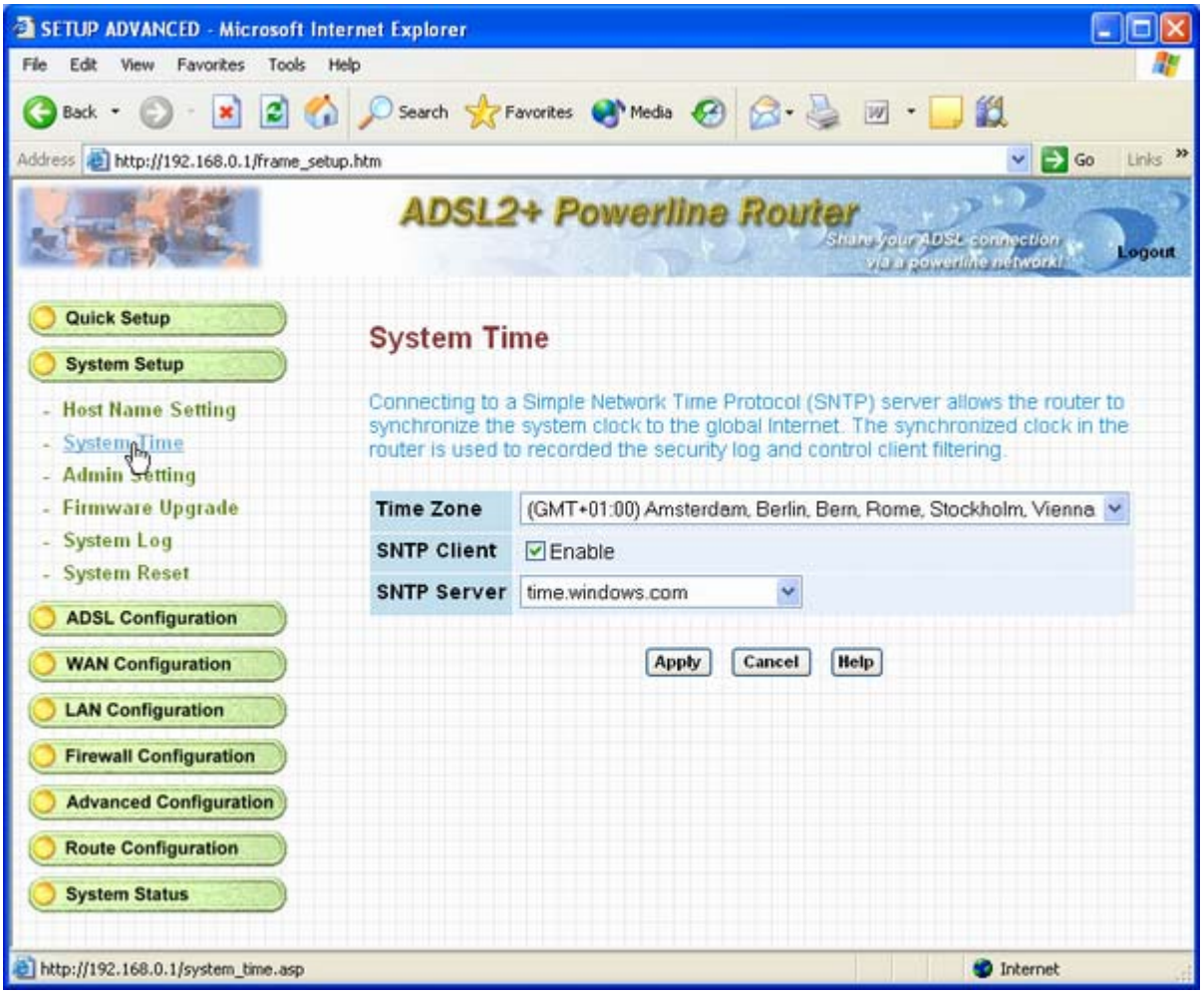
You can use "**Quick Setup**" to setup the router, and the router will connect to the Internet via ADSL line.

3.3.1 Hostname Setting



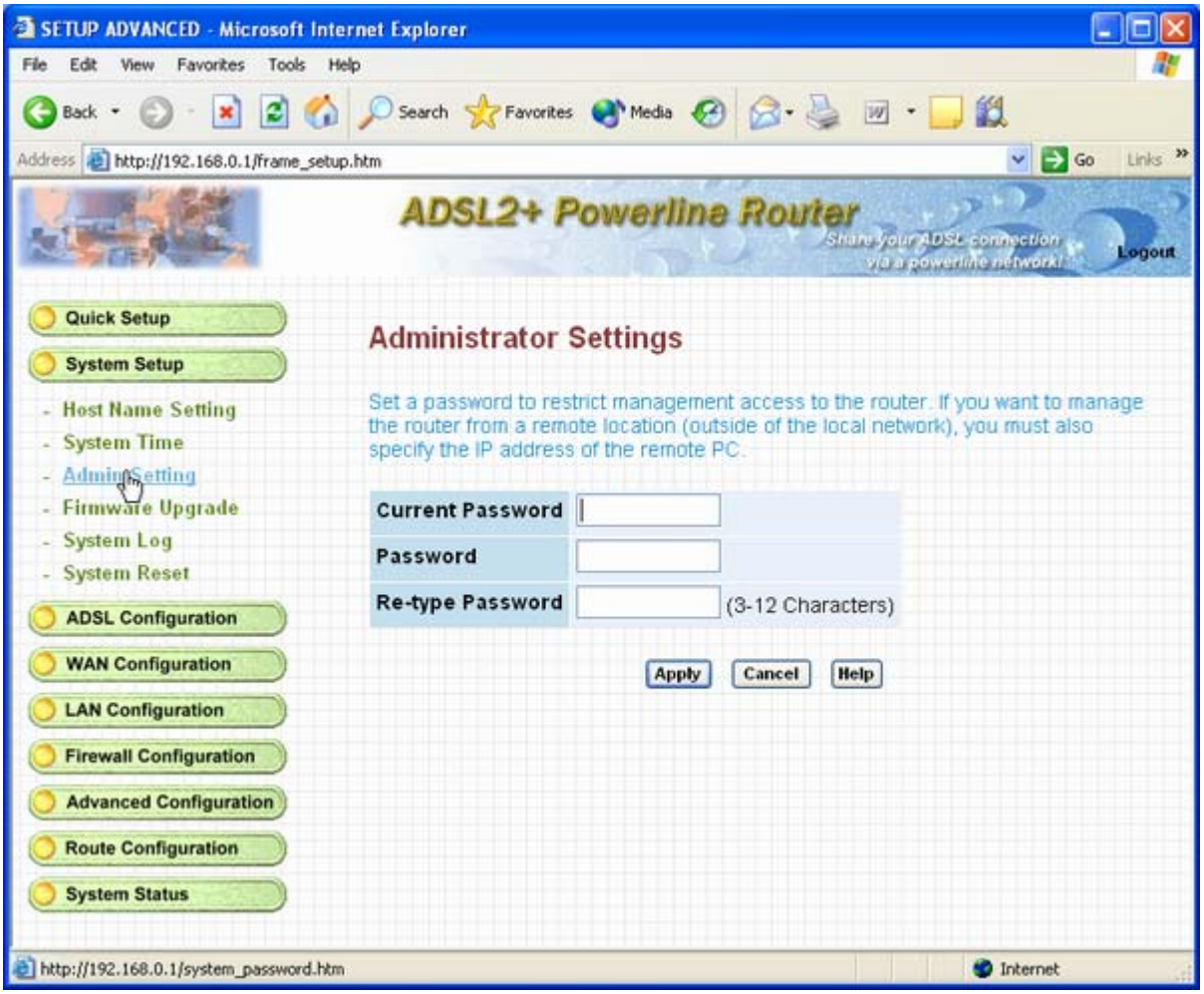
Enter the host name representing your host and the domain name you want to configuration, then you can doing web configuration by typing the whole name you configuration instead by typing the IP address.

3.3.2 System Time



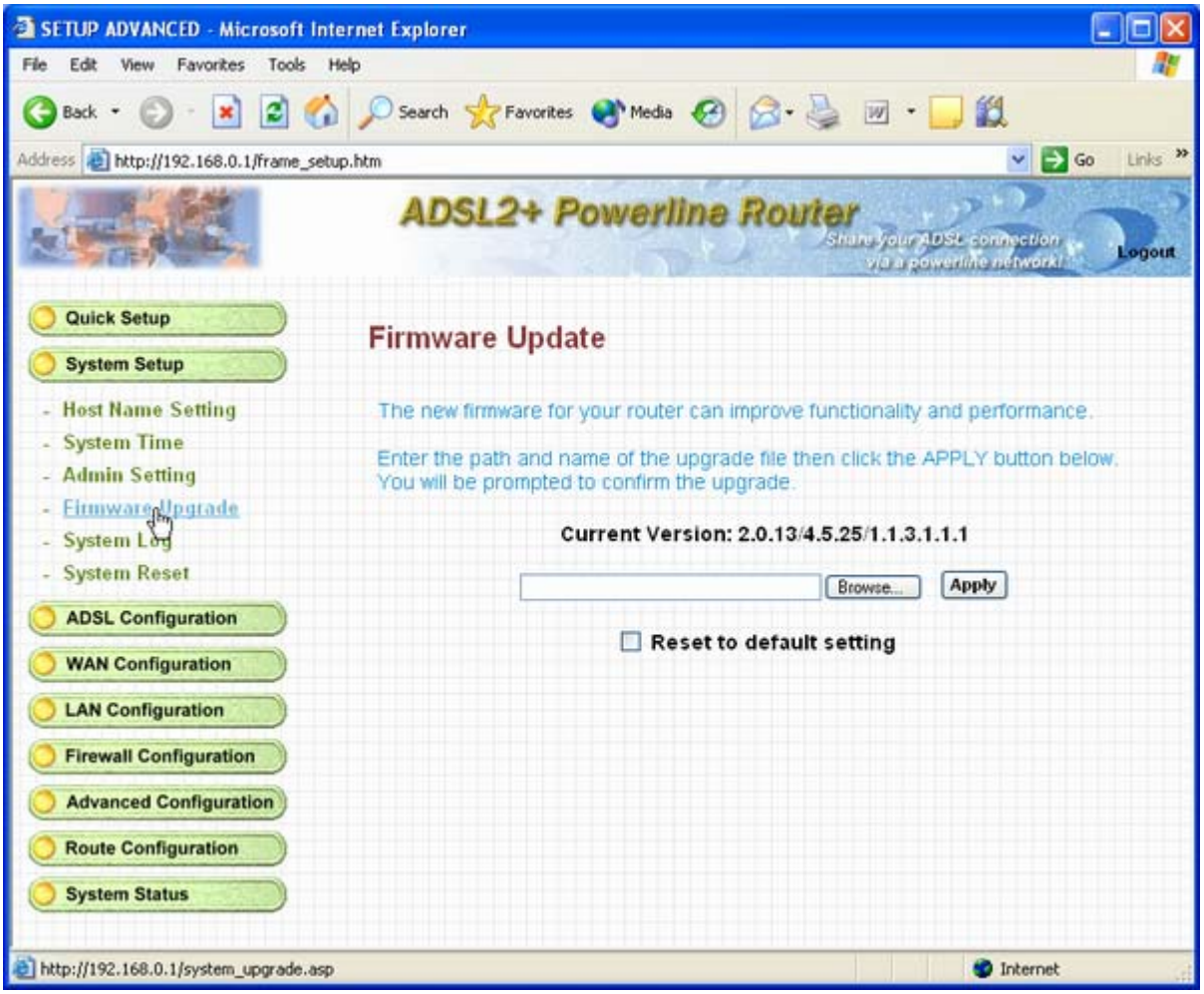
Connecting to a Simple Network Time Protocol (SNTP) server allows the router to synchronize the system clock to the global Internet. The synchronized clock in the router is used to recorded the security log and control client filtering.

3.3.3 Admin Setting



Set a password to restrict management access to the router. The default is **admin**.

3.3.4 Firmware Update

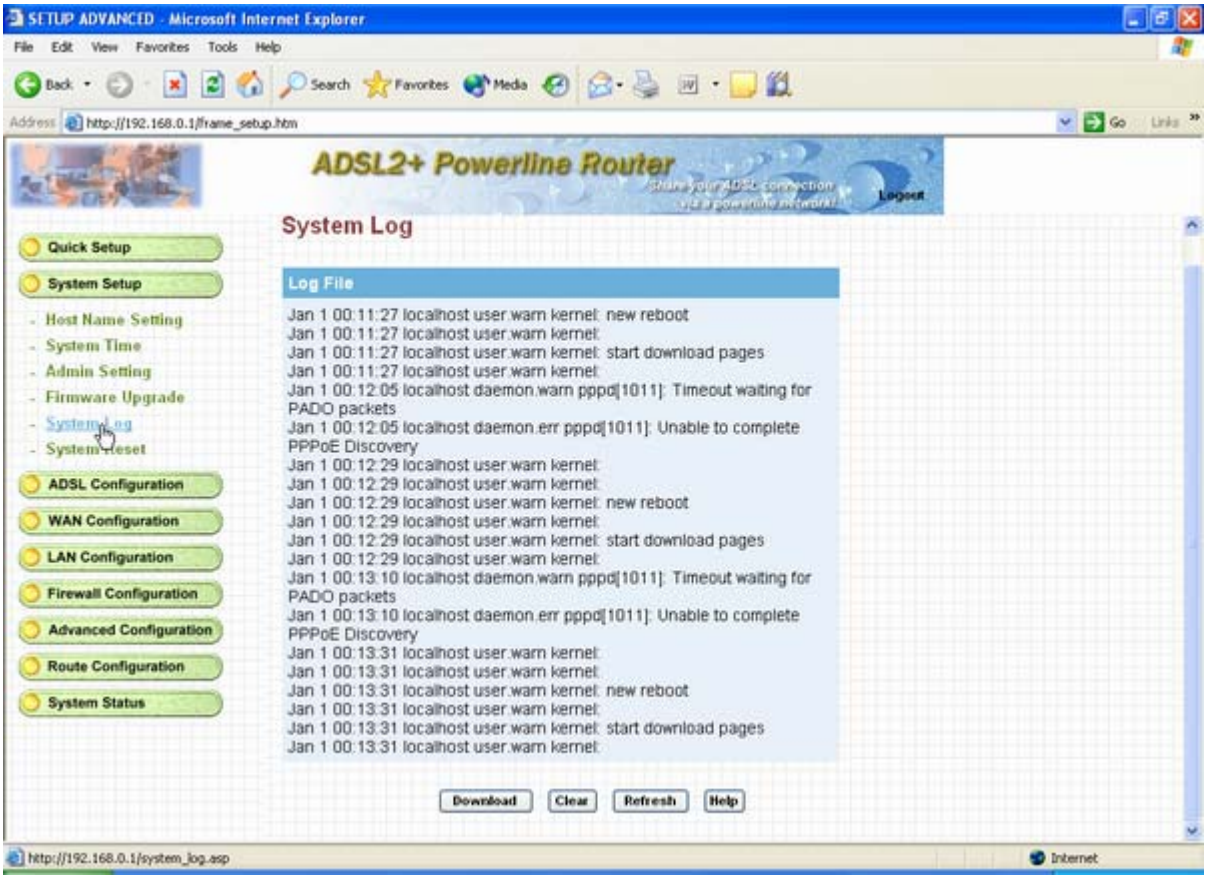


The new firmware for your router can improve functionality and performance.

Enter the path and name of the upgrade file then click the APPLY button below.

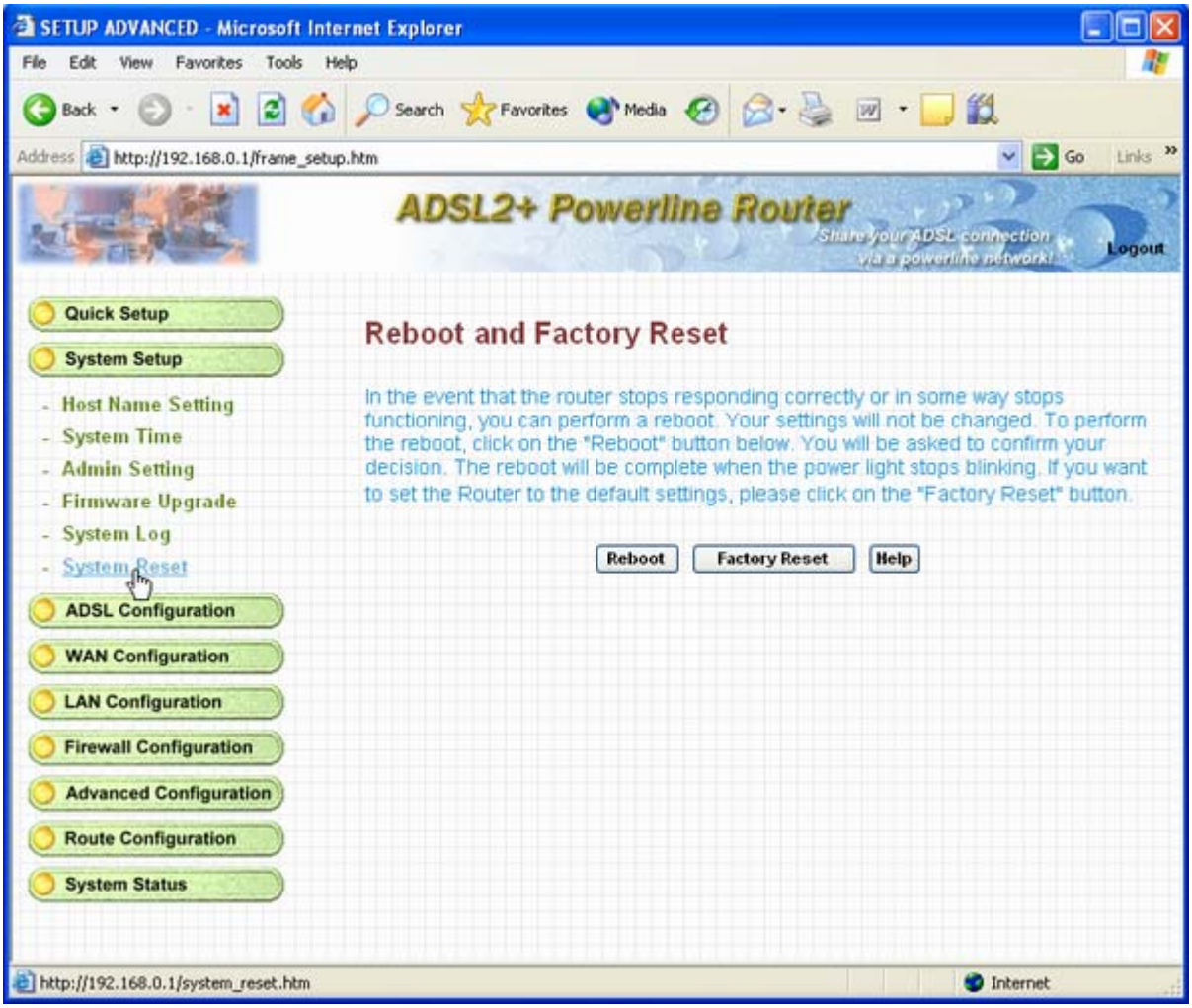
You will be prompted to confirm the upgrade.

3.3.5 System Log


SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go
ADSL2+ Powerline Router
Logout
Quick Setup
System Setup
- Host Name Setting
- System Time
- Admin Setting
- Firmware Upgrade
- System Log
- System Reset
ADSL Configuration
WAN Configuration
LAN Configuration
Firewall Configuration
Advanced Configuration
Route Configuration
System Status
System Log
Log File
Jan 1 00:11:27 localhost user.warn kernel: new reboot
Jan 1 00:11:27 localhost user.warn kernel:
Jan 1 00:11:27 localhost user.warn kernel: start download pages
Jan 1 00:11:27 localhost user.warn kernel:
Jan 1 00:12:05 localhost daemon.warn pppd[1011]: Timeout waiting for PADO packets
Jan 1 00:12:05 localhost daemon.err pppd[1011]: Unable to complete PPPoE Discovery
Jan 1 00:12:29 localhost user.warn kernel:
Jan 1 00:12:29 localhost user.warn kernel:
Jan 1 00:12:29 localhost user.warn kernel: new reboot
Jan 1 00:12:29 localhost user.warn kernel:
Jan 1 00:12:29 localhost user.warn kernel: start download pages
Jan 1 00:12:29 localhost user.warn kernel:
Jan 1 00:13:10 localhost daemon.warn pppd[1011]: Timeout waiting for PADO packets
Jan 1 00:13:10 localhost daemon.err pppd[1011]: Unable to complete PPPoE Discovery
Jan 1 00:13:31 localhost user.warn kernel:
Jan 1 00:13:31 localhost user.warn kernel:
Jan 1 00:13:31 localhost user.warn kernel: new reboot
Jan 1 00:13:31 localhost user.warn kernel:
Jan 1 00:13:31 localhost user.warn kernel: start download pages
Jan 1 00:13:31 localhost user.warn kernel:
Download
Clear
Refresh
Help
http://192.168.0.1/system_log.asp
Internet

Click “**Download**” to save or open system log file.

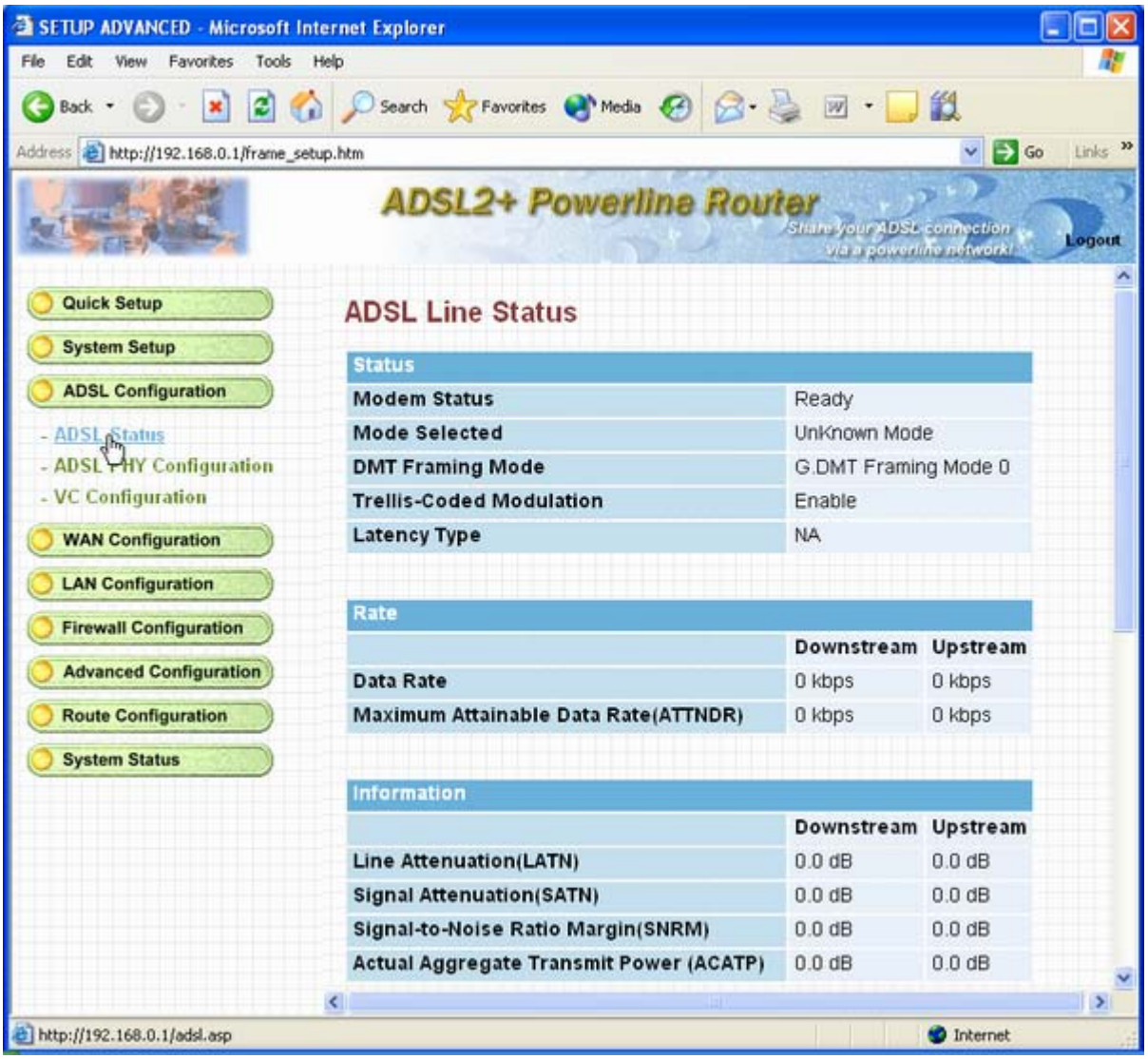
3.3.6 System Reset


SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go Links
ADSL2+ Powerline Router
Share your ADSL connection via a powerline network!
Logout
Quick Setup
System Setup
- Host Name Setting
- System Time
- Admin Setting
- Firmware Upgrade
- System Log
- System Reset
ADSL Configuration
WAN Configuration
LAN Configuration
Firewall Configuration
Advanced Configuration
Route Configuration
System Status
Reboot and Factory Reset
In the event that the router stops responding correctly or in some way stops functioning, you can perform a reboot. Your settings will not be changed. To perform the reboot, click on the "Reboot" button below. You will be asked to confirm your decision. The reboot will be complete when the power light stops blinking. If you want to set the Router to the default settings, please click on the "Factory Reset" button.
Reboot
Factory Reset
Help
http://192.168.0.1/system_reset.htm
Internet

In the event that the router stops responding correctly or in some way stops functioning, you can perform a reset. Your settings will not be changed. To perform the reset, click on the "**Reset**" button below. You will be asked to confirm your decision.

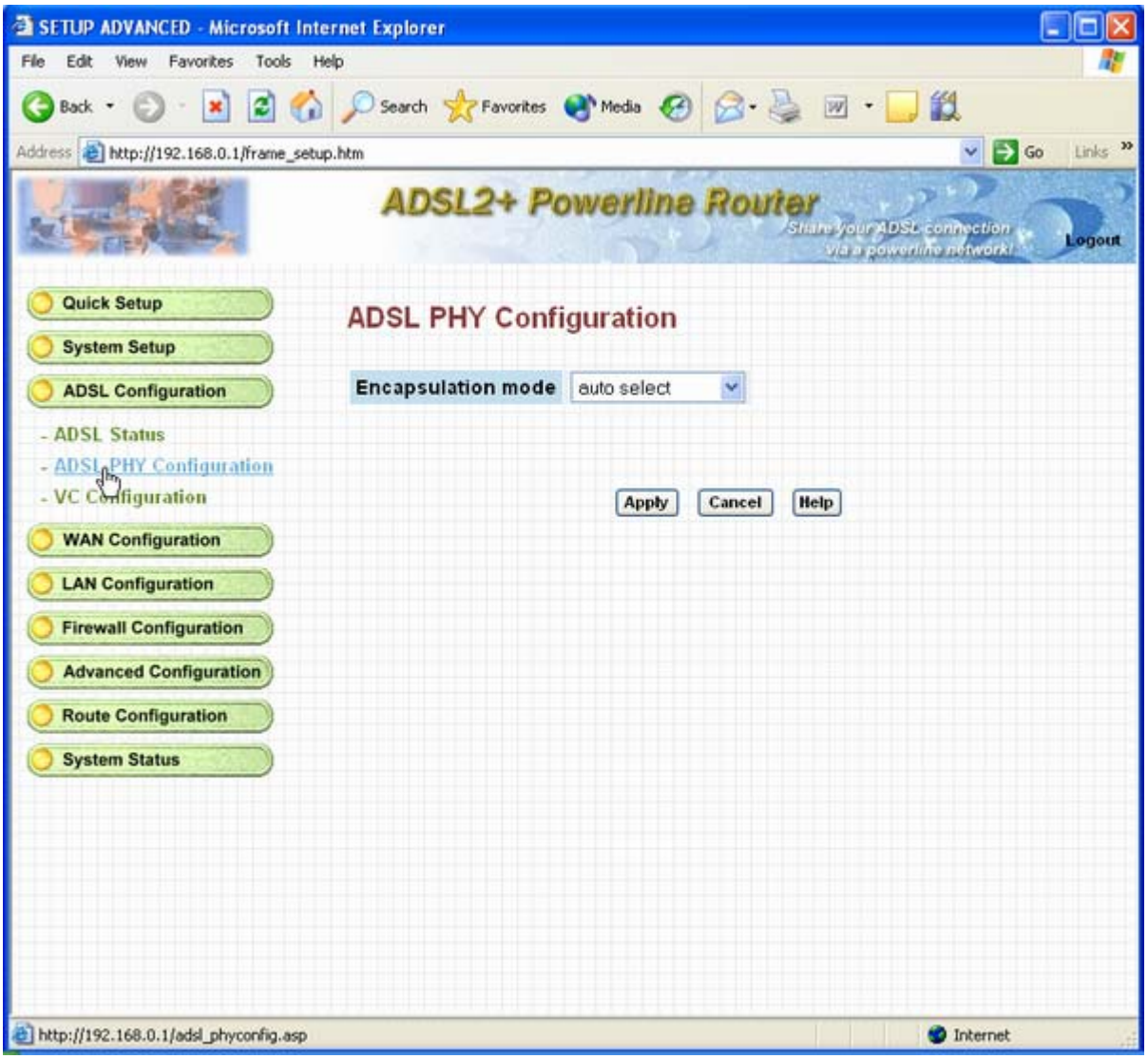
Click on the “**Factory Reset**” button, the router will restore default settings.

3.4.1 ADSL Status



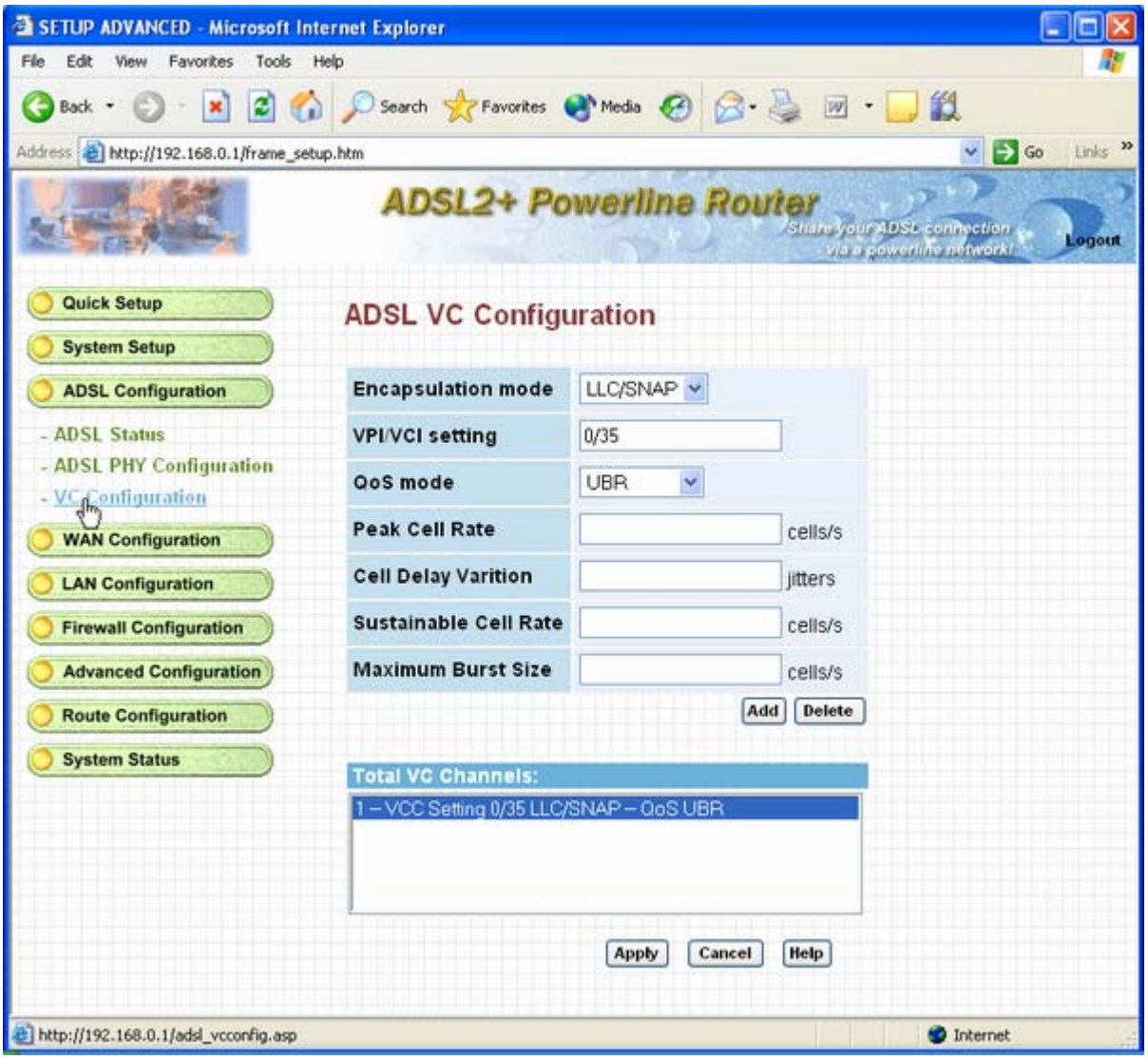
The "**ADSL Line Status**" enables you to check the status of your ADSL connection including how fast data is being transferred.

3.4.2 ADSL PHY Configuration



The "**ADSL PHY Configuration**" enables you to change the ADSL (G.992.1), ADSL2 (G.992.3) and ADSL2+ (G.992.5) settings.

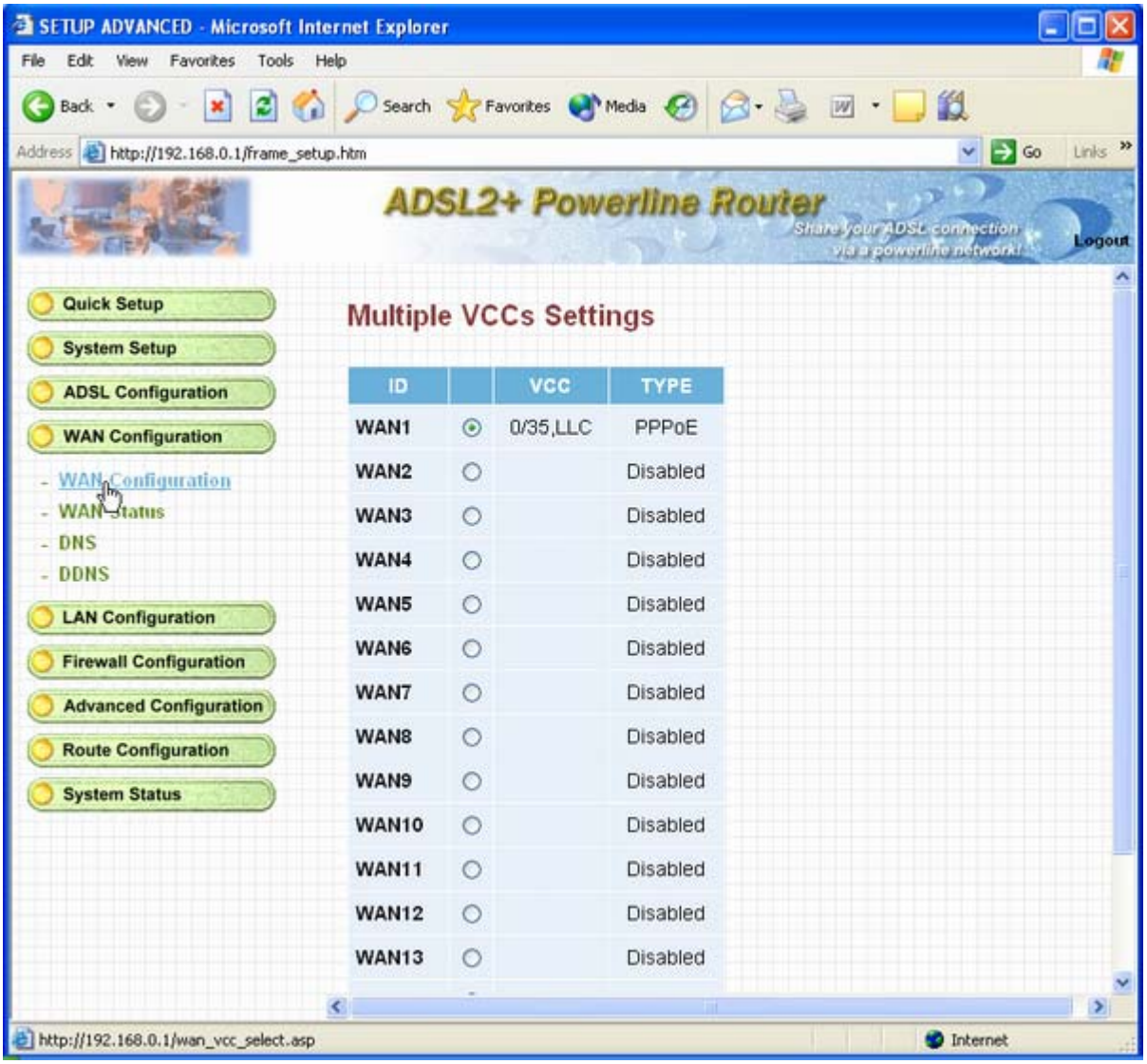
3.4.3 VC Configuration



To add or delete ADSL VC configuration, these information provide by ISP.

Check a VC ID then press “**Apply**”.

3.5.1 WAN Configuration



The router can be connected to your service provider in any of the following ways

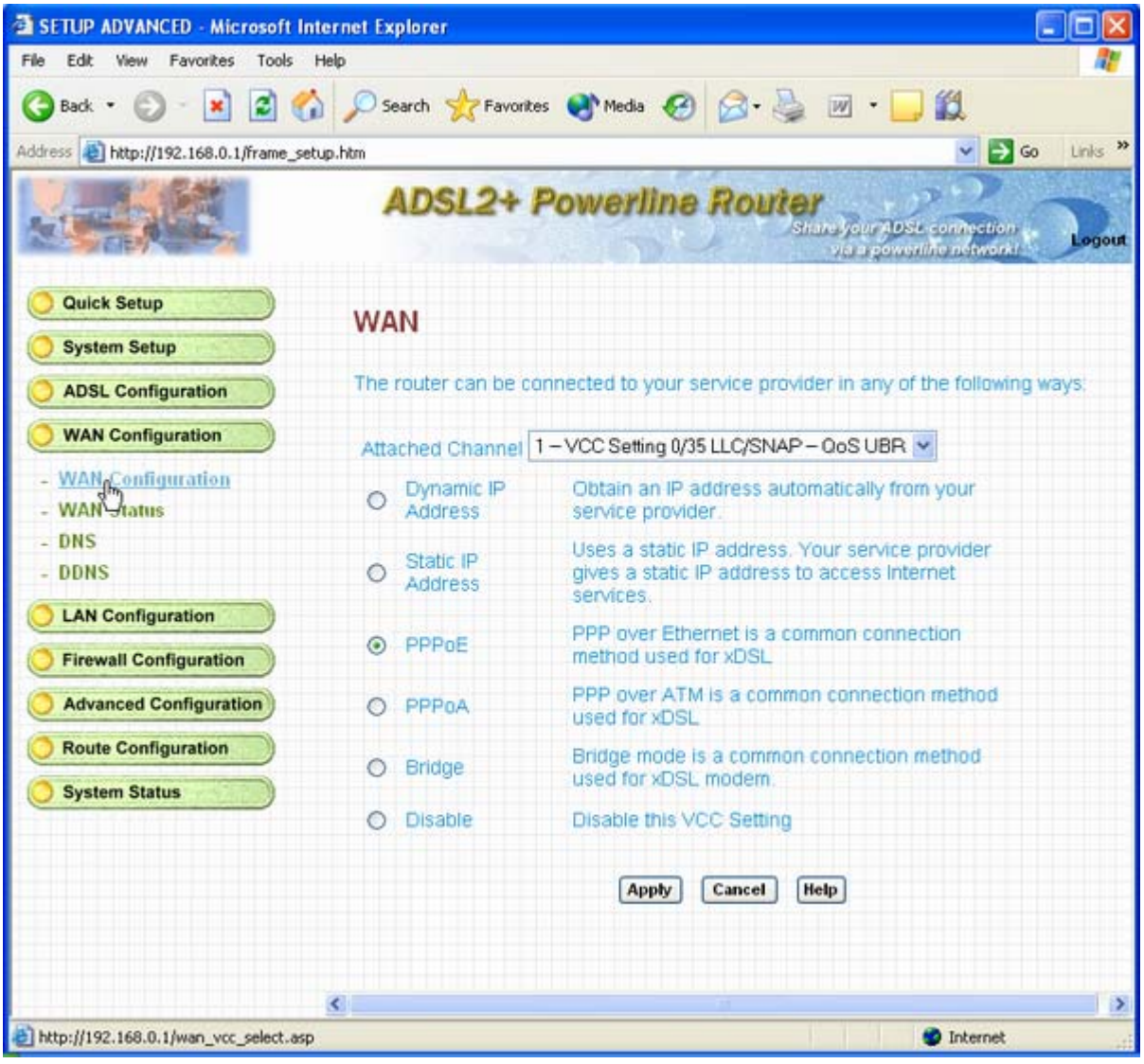
Dynamic IP Address: Obtain an IP address automatically from your service provider.

Static IP Address: Uses a static IP address. Your service provider gives a static IP address to access Internet services.

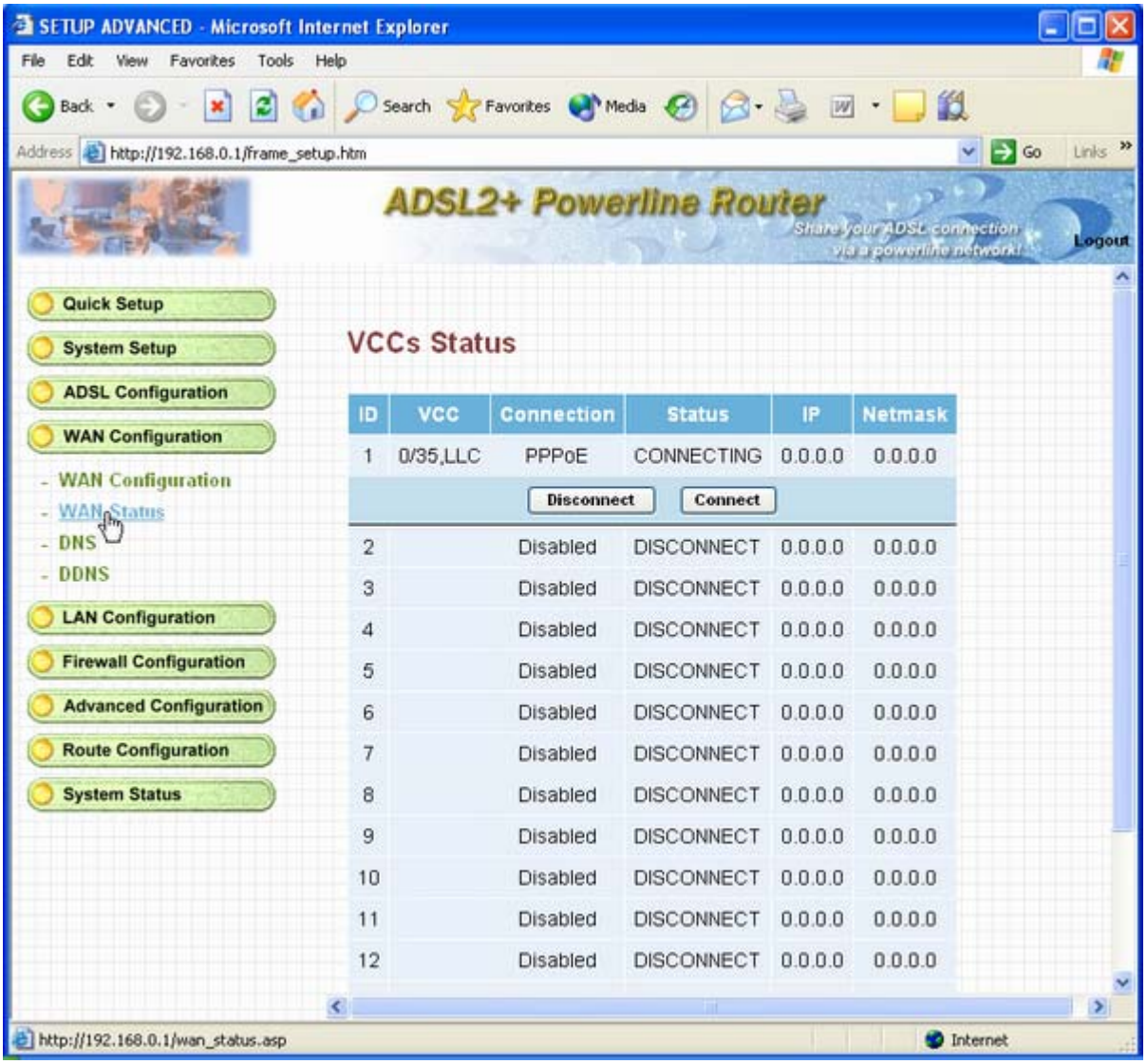
PPPoE: PPP over Ethernet is a common connection method used for xDSL

PPPoA: PPP over ATM is a common connection method used for xDSL

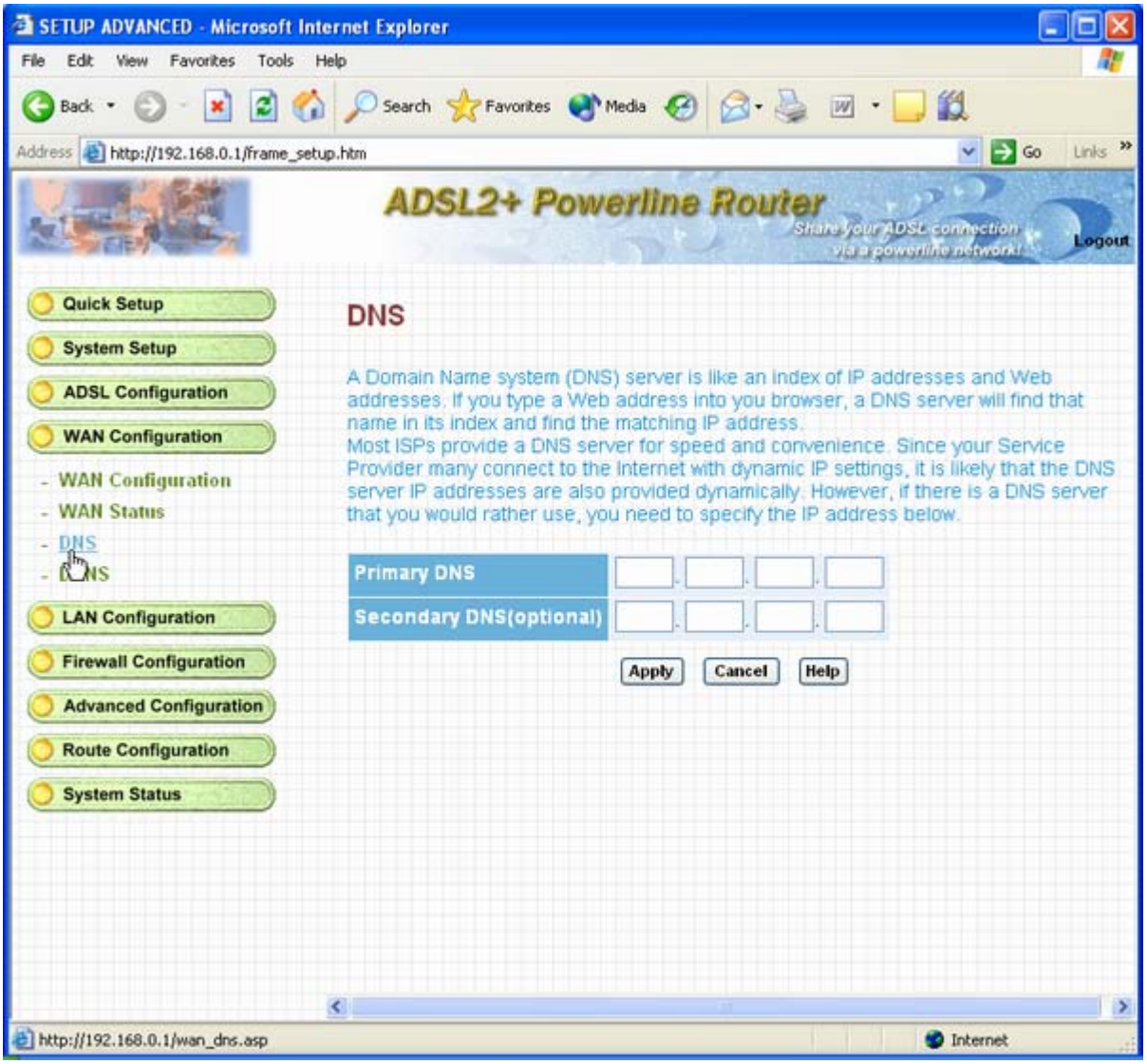
Bridge: Bridge mode is a common connection method used for xDSL modem.


SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go Links
ADSL2+ Powerline Router
Share your ADSL connection via a powerline network!
Logout
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
- WAN Configuration
- WAN Status
- DNS
- DDNS
LAN Configuration
Firewall Configuration
Advanced Configuration
Route Configuration
System Status
WAN
The router can be connected to your service provider in any of the following ways.
Attached Channel 1 – VCC Setting 0/35 LLC/SNAP – QoS UBR
Dynamic IP Address
Obtain an IP address automatically from your service provider.
Static IP Address
Uses a static IP address. Your service provider gives a static IP address to access Internet services.
PPPoE
PPP over Ethernet is a common connection method used for xDSL.
PPPoA
PPP over ATM is a common connection method used for xDSL.
Bridge
Bridge mode is a common connection method used for xDSL modem.
Disable
Disable this VCC Setting
Apply
Cancel
Help
http://192.168.0.1/wan_vcc_select.asp
Internet

3.5.2 WAN Status



3.5.3 DNS

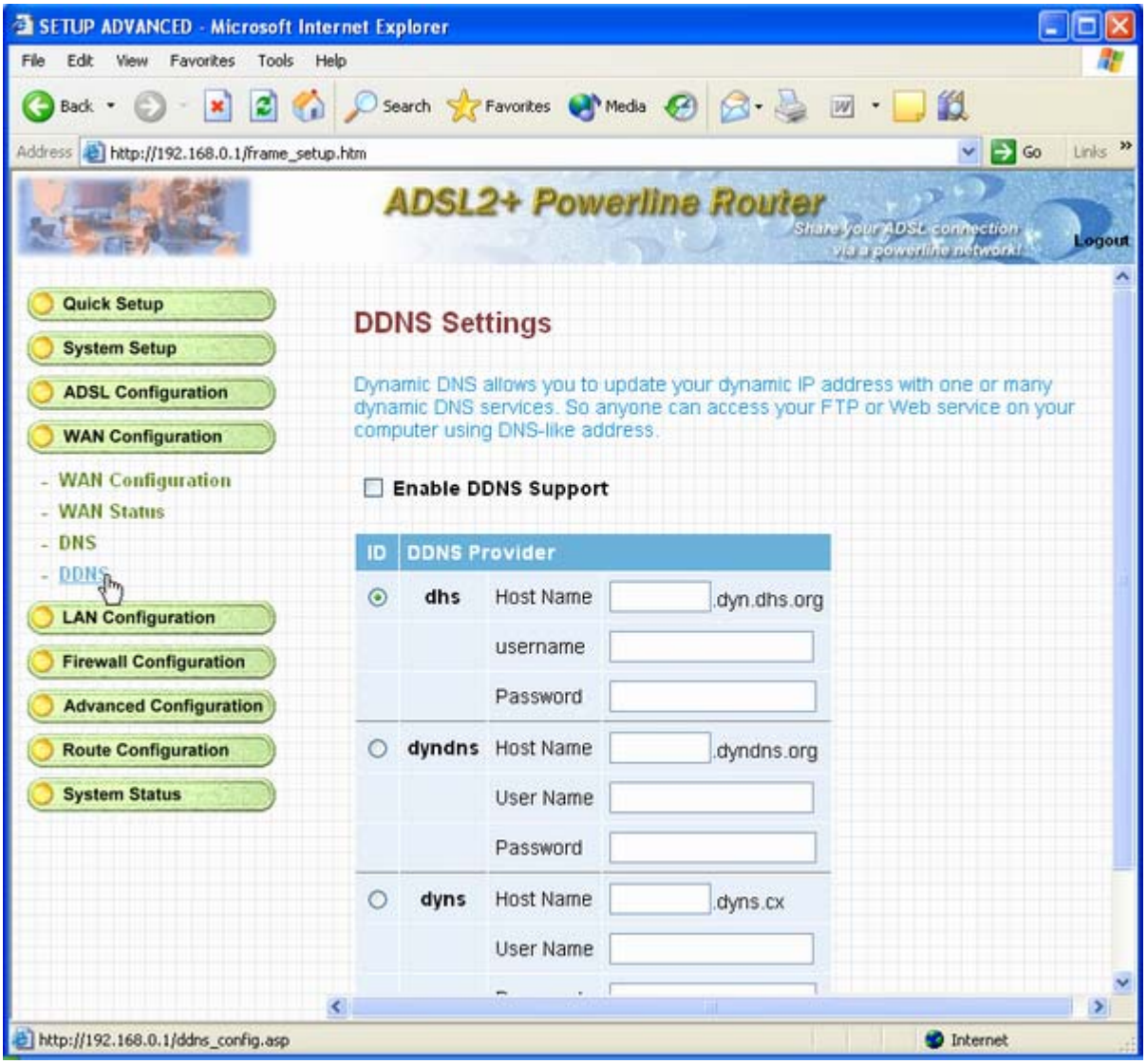

SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go Links
ADSL2+ Powerline Router
Share your ADSL connection via a powerline network!
Logout
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
- WAN Configuration
- WAN Status
- DNS
LAN Configuration
Firewall Configuration
Advanced Configuration
Route Configuration
System Status
DNS
A Domain Name system (DNS) server is like an index of IP addresses and Web addresses. If you type a Web address into you browser, a DNS server will find that name in its index and find the matching IP address.
Most ISPs provide a DNS server for speed and convenience. Since your Service Provider many connect to the Internet with dynamic IP settings, it is likely that the DNS server IP addresses are also provided dynamically. However, if there is a DNS server that you would rather use, you need to specify the IP address below.
Primary DNS
Secondary DNS(optional)
Apply
Cancel
Help
http://192.168.0.1/wan_dns.asp
Internet

A Domain Name system (DNS) server is like an index of IP addresses and Web addresses.

If you type a Web address into you browser, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since your Service Provider many connect to the Internet with dynamic IP settings, it is likely that the DNS server IP addresses are also provided dynamically.

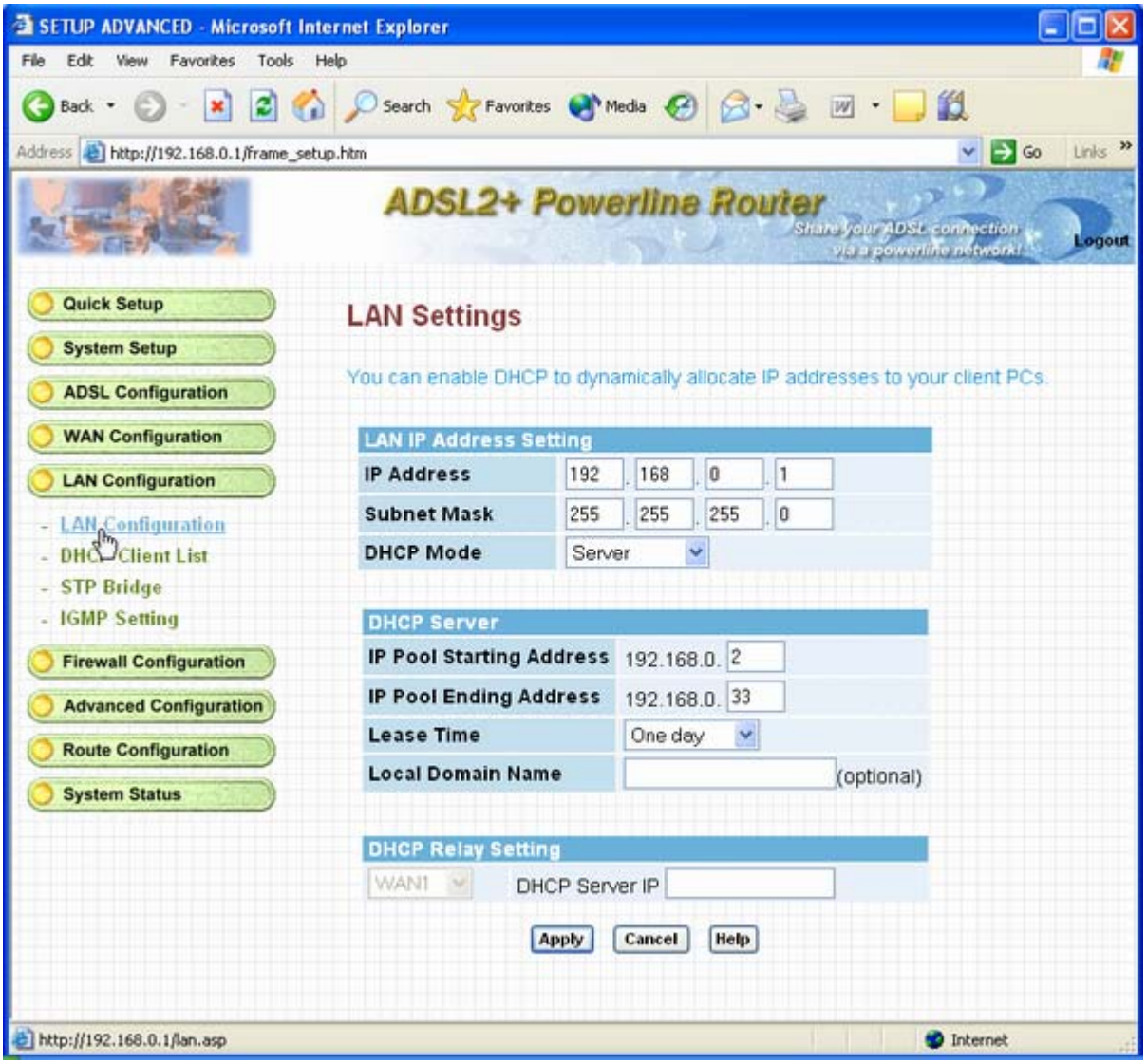
However, if there is a DNS server that you would rather use, you need to specify the IP address below.

3.5.4 DDNS



Dynamic DNS allows you to update your dynamic IP address with one or many dynamic DNS services. So anyone can access your FTP or Web service on your computer using DNS-like address.

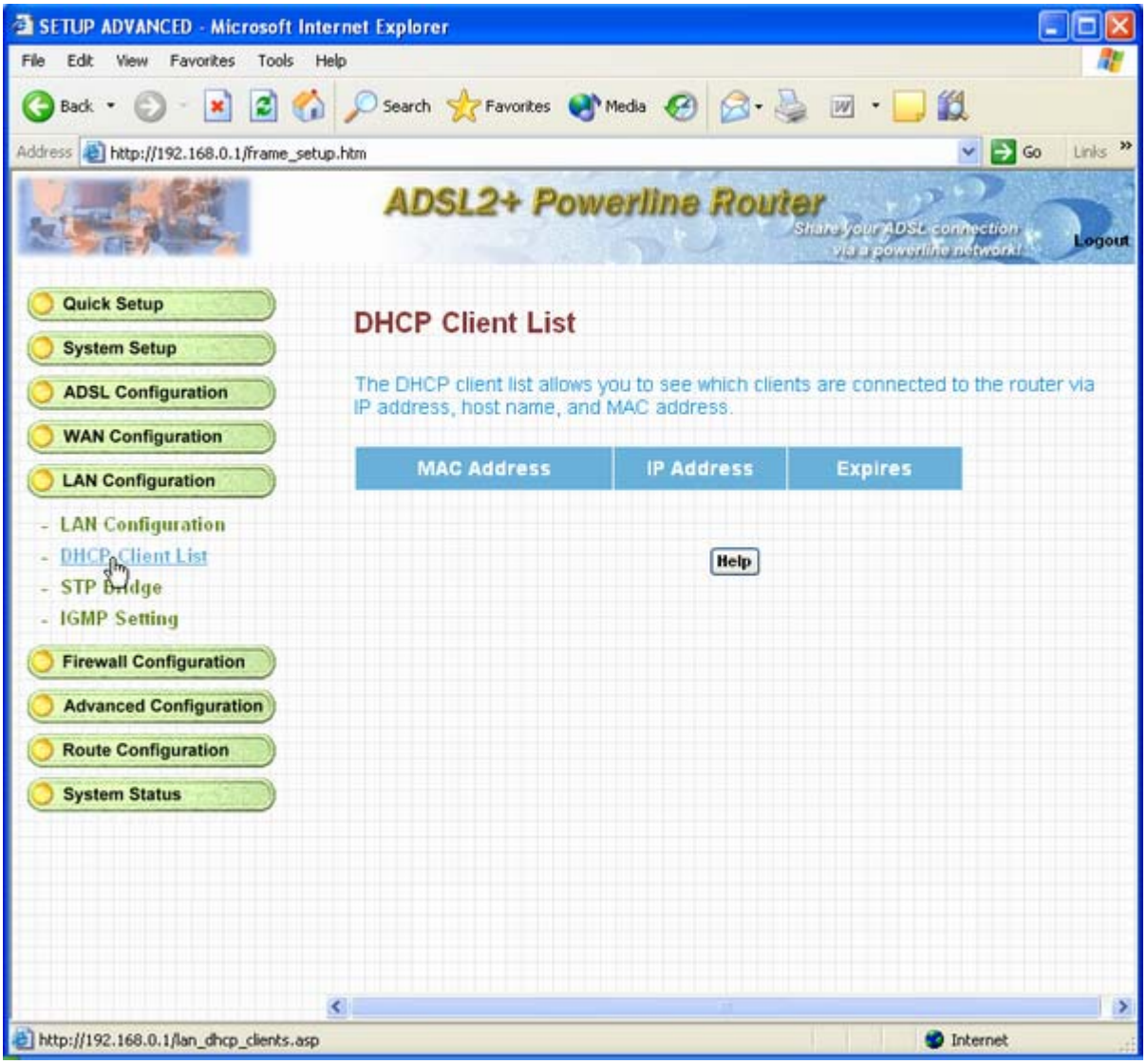
3.6.1 LAN Configuration



The "**LAN Settings**" option enables you to configure the LAN port.

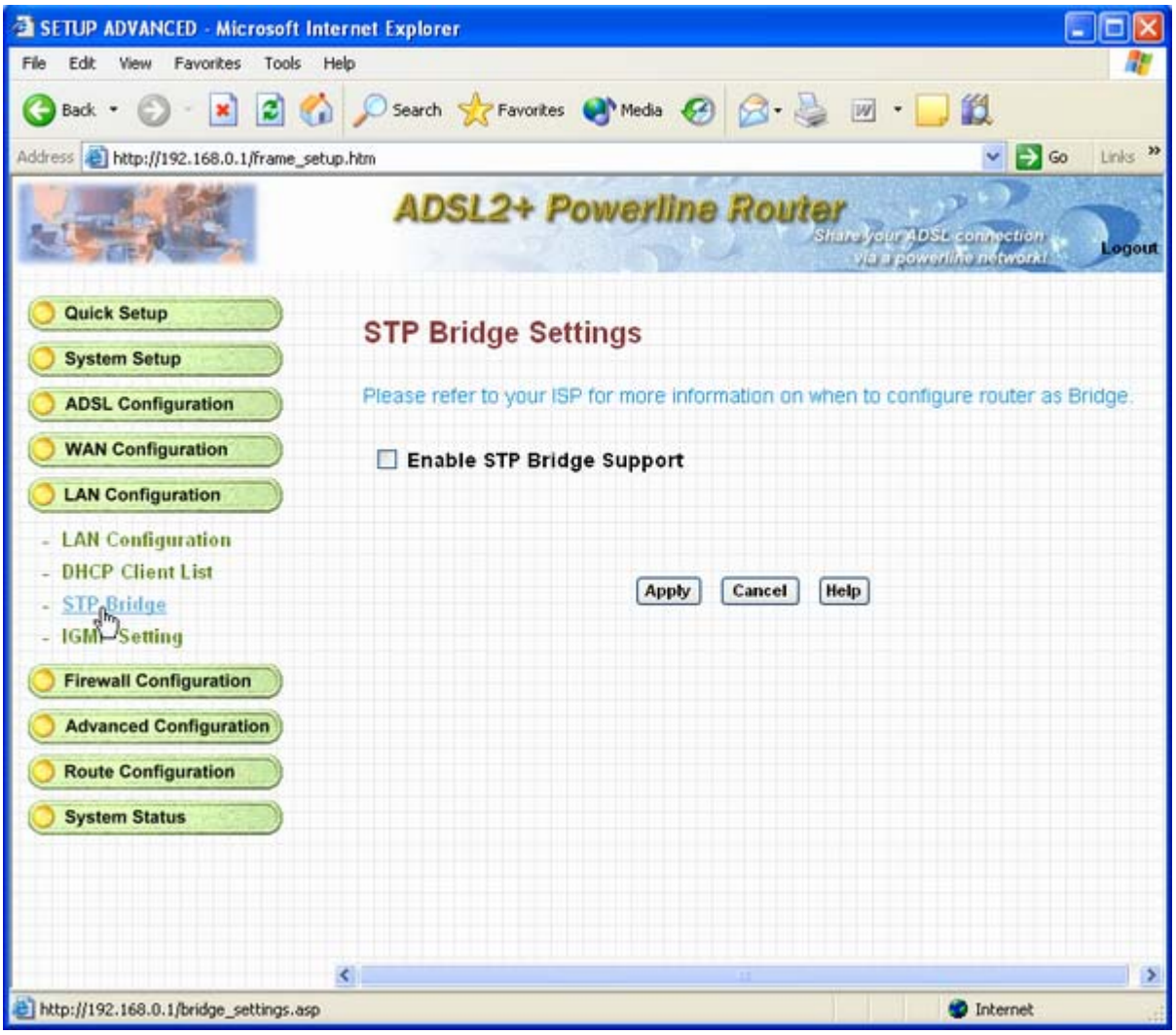
If the DHCP Relay is selected, the DHCP requests from local PCs are forward to the DHCP server runs on WAN side. To have this function working properly, disable the NAT to run on router mode only, disable the DHCP server on the LAN port, and make sure the routing table has the correct routing entry.

3.6.2 DHCP Client List



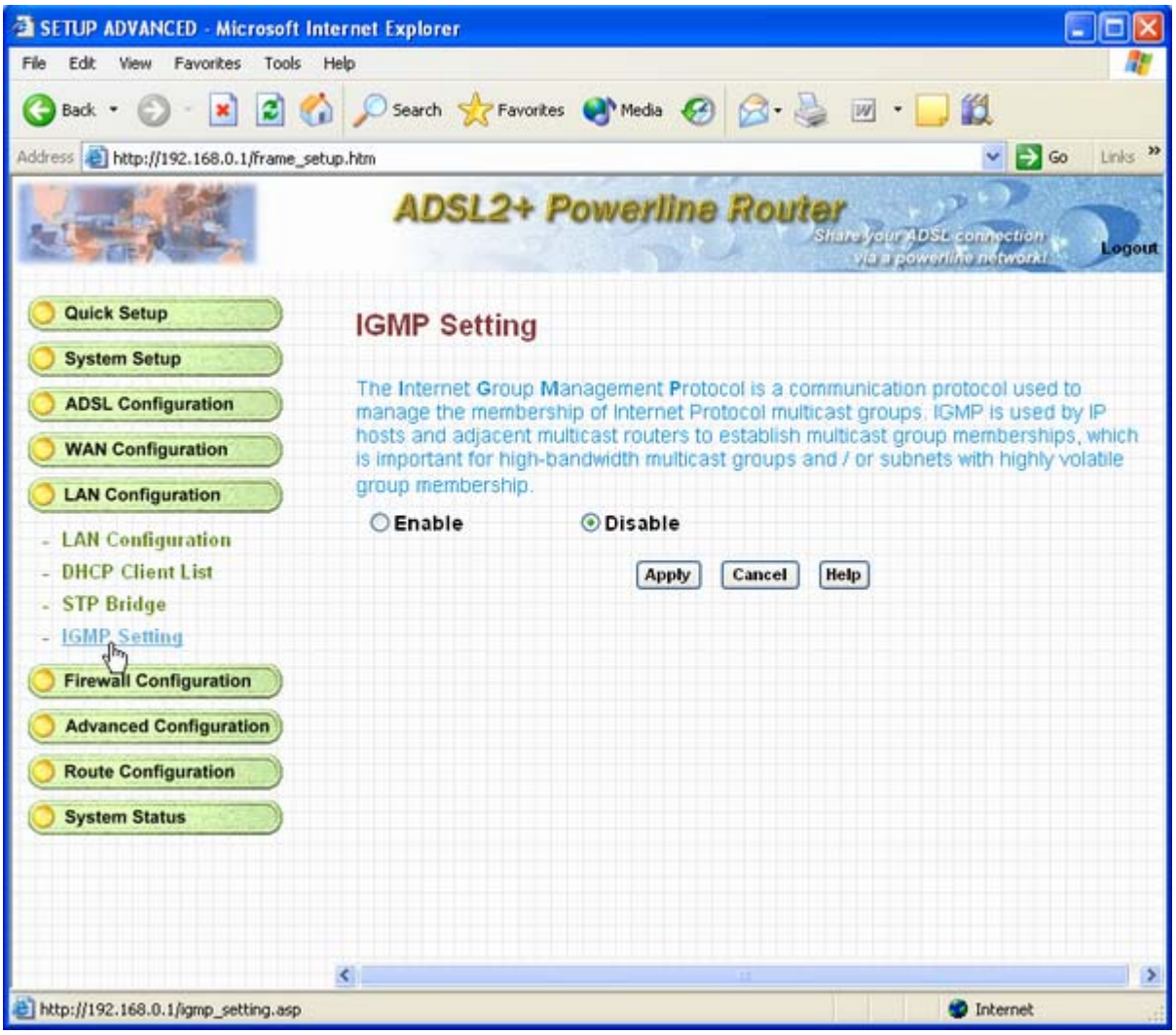
The DHCP client list allows you to see which clients are connected to the router via IP address and MAC address.

3.6.3 STB Bridge



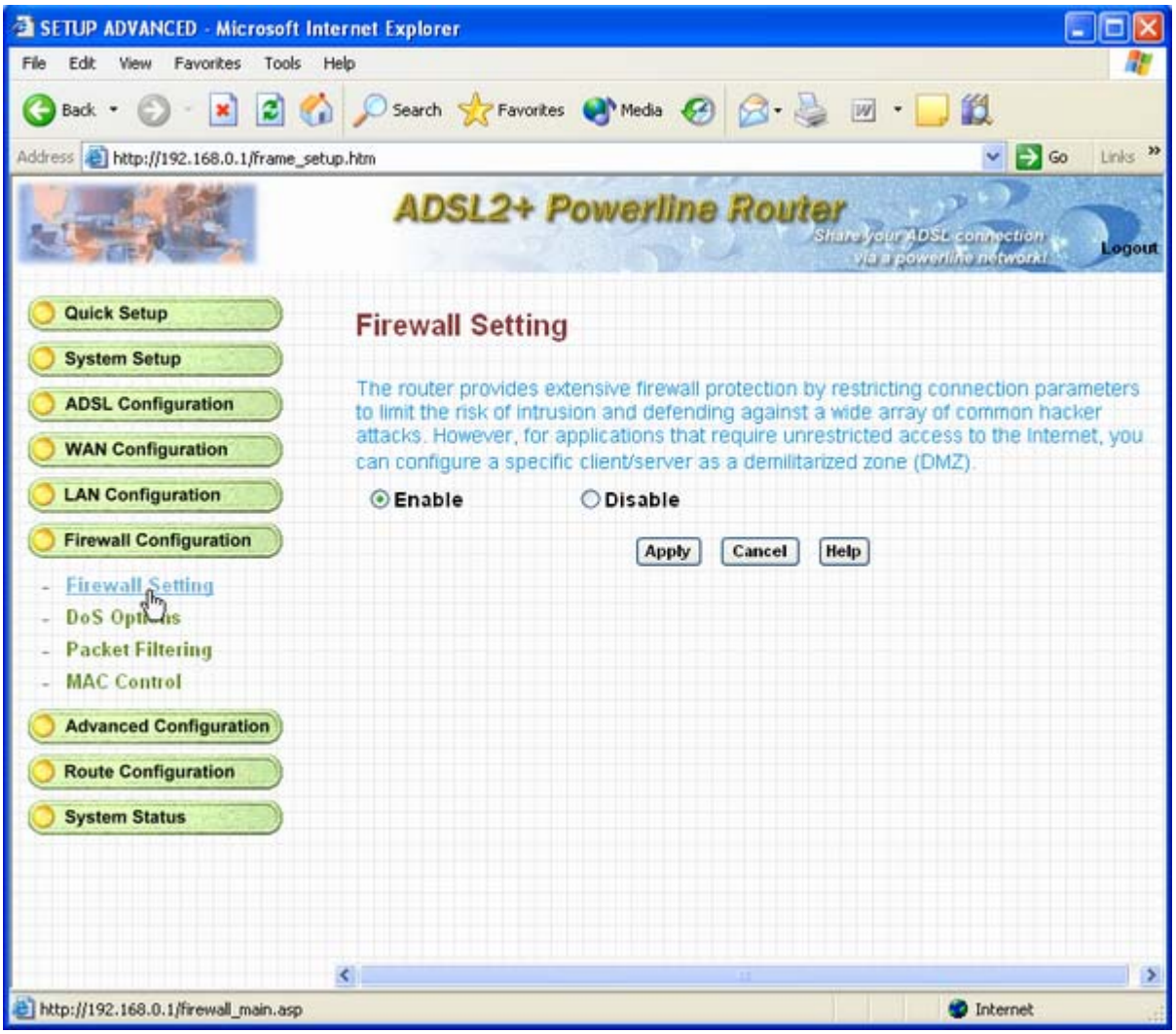
Please refer to your ISP for more information on when to configure the router as a bridge.

3.6.4 IGMP Setting


SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go Links
ADSL2+ Powerline Router
Share your ADSL connection via a powerline network!
Logout
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
- LAN Configuration
- DHCP Client List
- STP Bridge
- IGMP Setting
Firewall Configuration
Advanced Configuration
Route Configuration
System Status
IGMP Setting
The Internet Group Management Protocol is a communication protocol used to manage the membership of Internet Protocol multicast groups. IGMP is used by IP hosts and adjacent multicast routers to establish multicast group memberships, which is important for high-bandwidth multicast groups and / or subnets with highly volatile group membership.
Enable
Disable
Apply
Cancel
Help
http://192.168.0.1/igmp_setting.asp
Internet

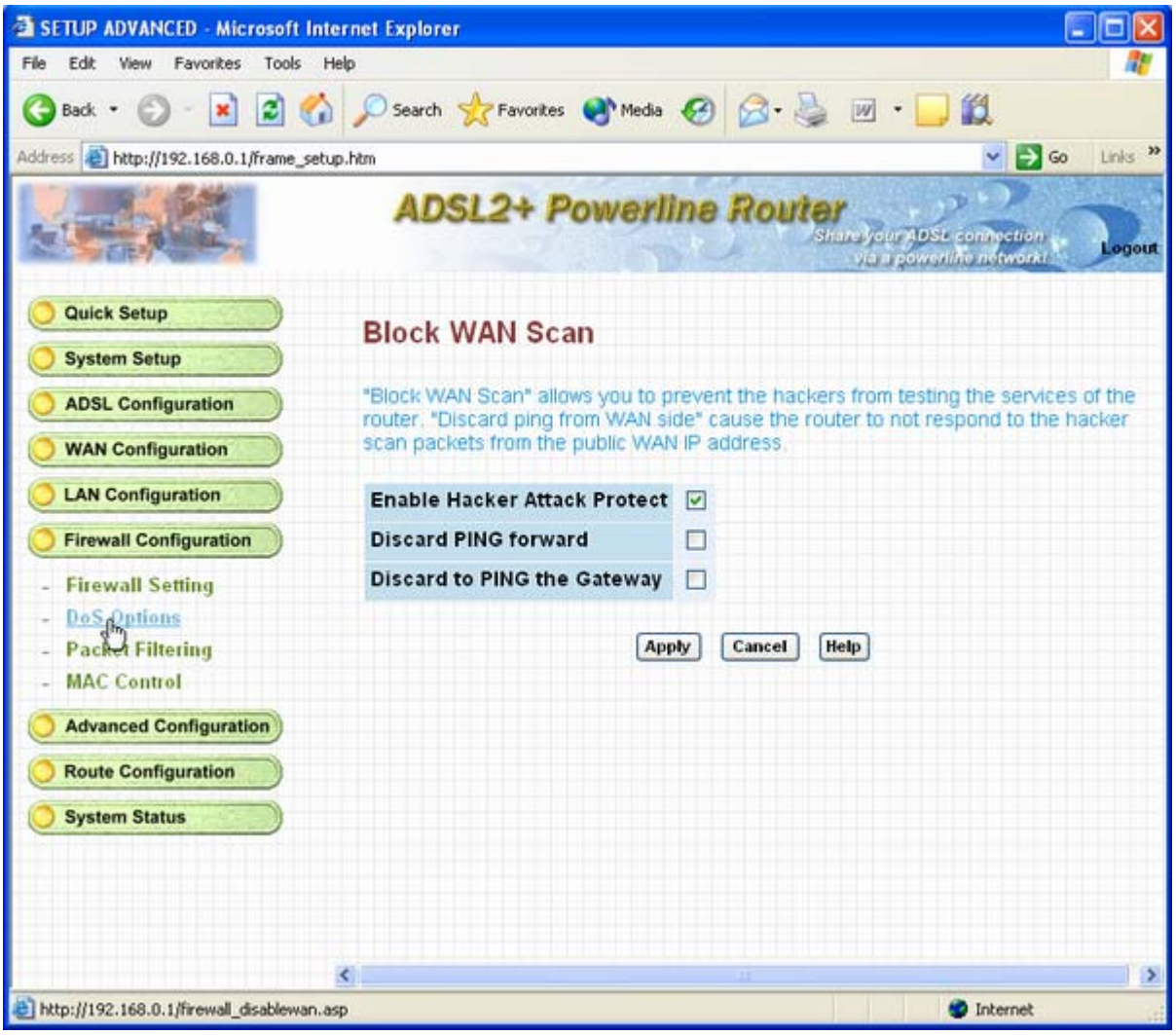
The Internet Group Management Protocol is a communication protocol used to manage the membership of Internet Protocol multicast groups. IGMP is used by IP hosts and adjacent multicast routers to establish multicast group memberships, which is important for high-bandwidth multicast groups and / or subnets with highly volatile group membership.

3.7.1 Firewall Setting



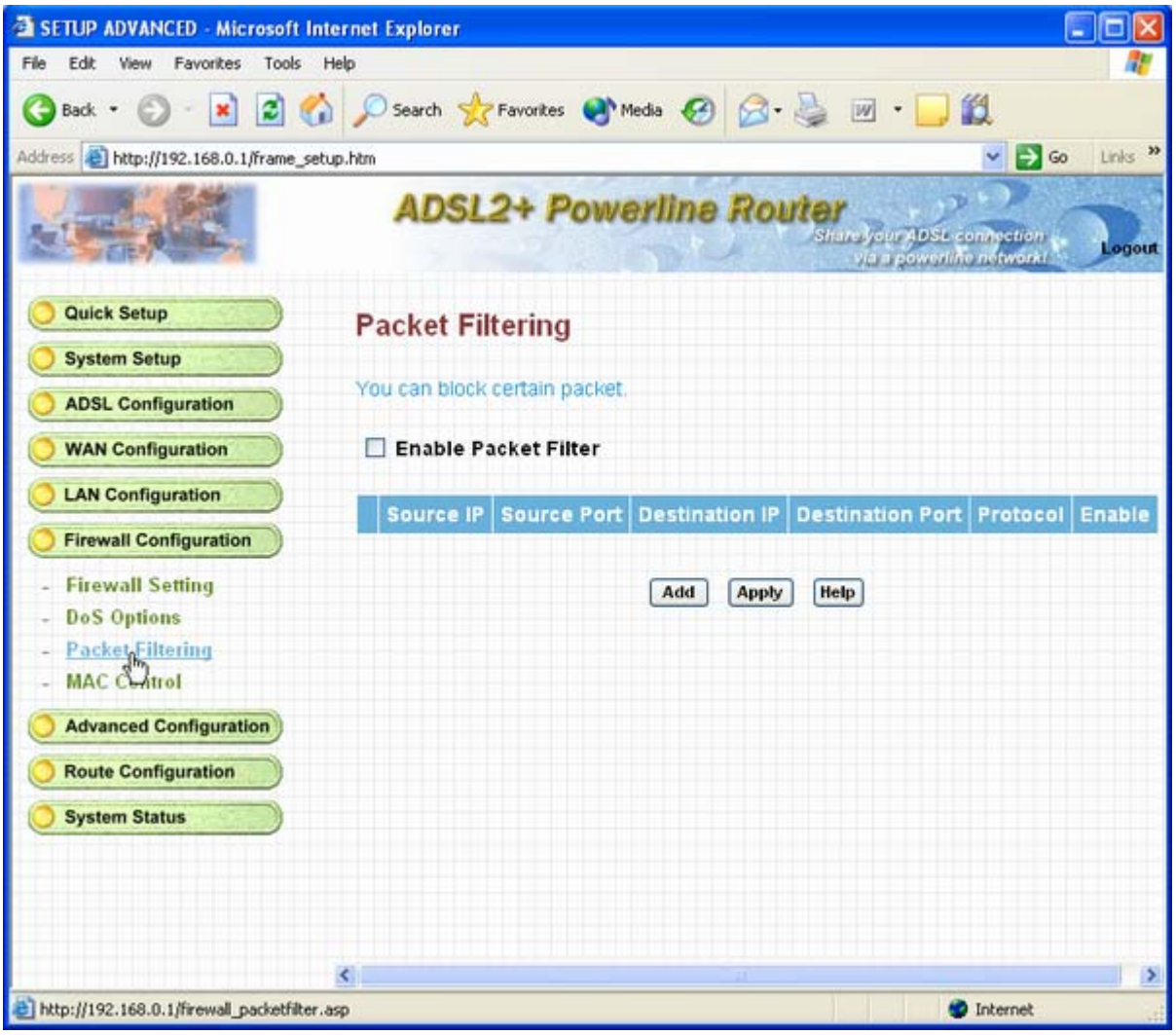
The router provides extensive firewall protection by restricting connection parameters to limit the risk of intrusion and defending against a wide array of common hacker attacks. However, for applications that requires unrestricted access to the Internet.

3.7.2 DoS Options


SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go Links
ADSL2+ Powerline Router
Share your ADSL connection via a powerline network!
Logout
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
Firewall Configuration
- Firewall Setting
- DoS Options
- Packet Filtering
- MAC Control
Advanced Configuration
Route Configuration
System Status
Block WAN Scan
"Block WAN Scan" allows you to prevent the hackers from testing the services of the router. "Discard ping from WAN side" cause the router to not respond to the hacker scan packets from the public WAN IP address.
Enable Hacker Attack Protect
Discard PING forward
Discard to PING the Gateway
Apply Cancel Help
http://192.168.0.1/firewall_disablewan.asp
Internet

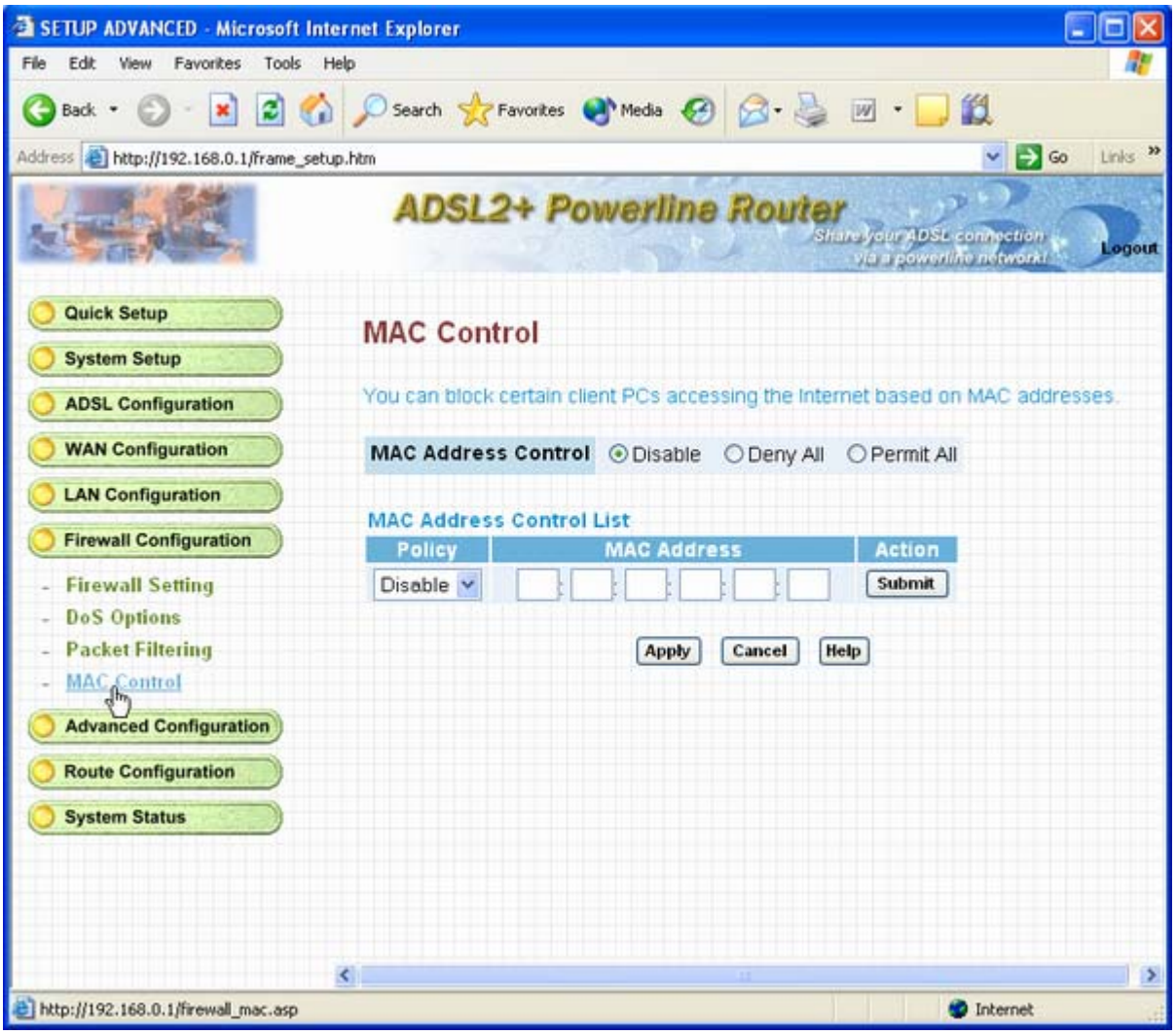
"**Block WAN Scan**" allow you to prevent the hackers from testing the services of the router. "Discard ping from WAN side" cause the router to not respond to the hacker scan packets from the public WAN IP address.

3.7.3 Packet Filtering



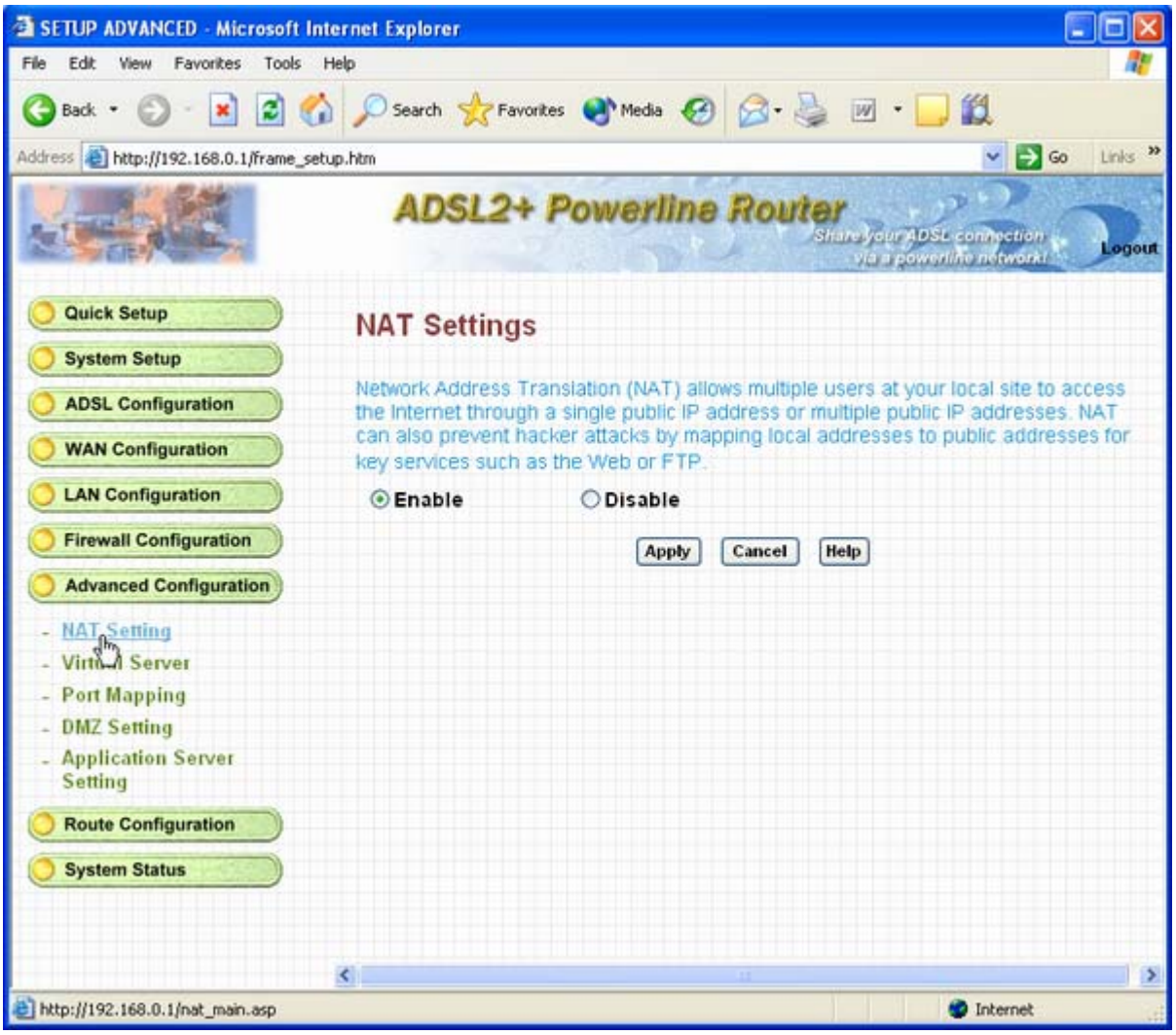
To add packet filtering rule to block certain packet.

3.7.4 MAC Control



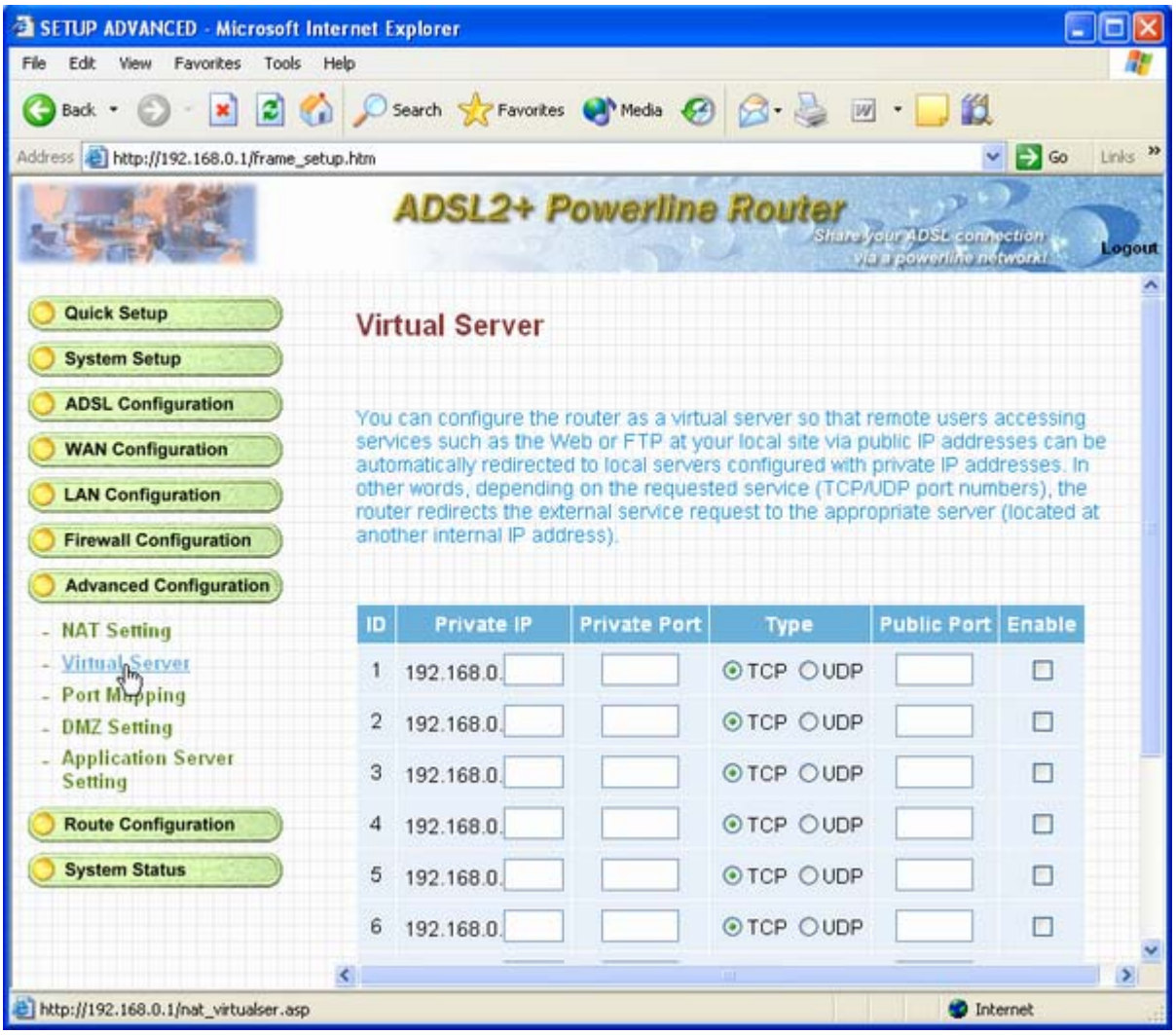
You can block certain client PCs accessing the Internet based on MAC address.

3.8.1 NAT Setting


SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go Links
ADSL2+ Powerline Router
Share your ADSL connection via a powerline network!
Logout
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
Firewall Configuration
Advanced Configuration
- NAT Setting
- Virtual Server
- Port Mapping
- DMZ Setting
- Application Server Setting
Route Configuration
System Status
NAT Settings
Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single public IP address or multiple public IP addresses. NAT can also prevent hacker attacks by mapping local addresses to public addresses for key services such as the Web or FTP.
Enable
Disable
Apply
Cancel
Help
http://192.168.0.1/nat_main.asp
Internet

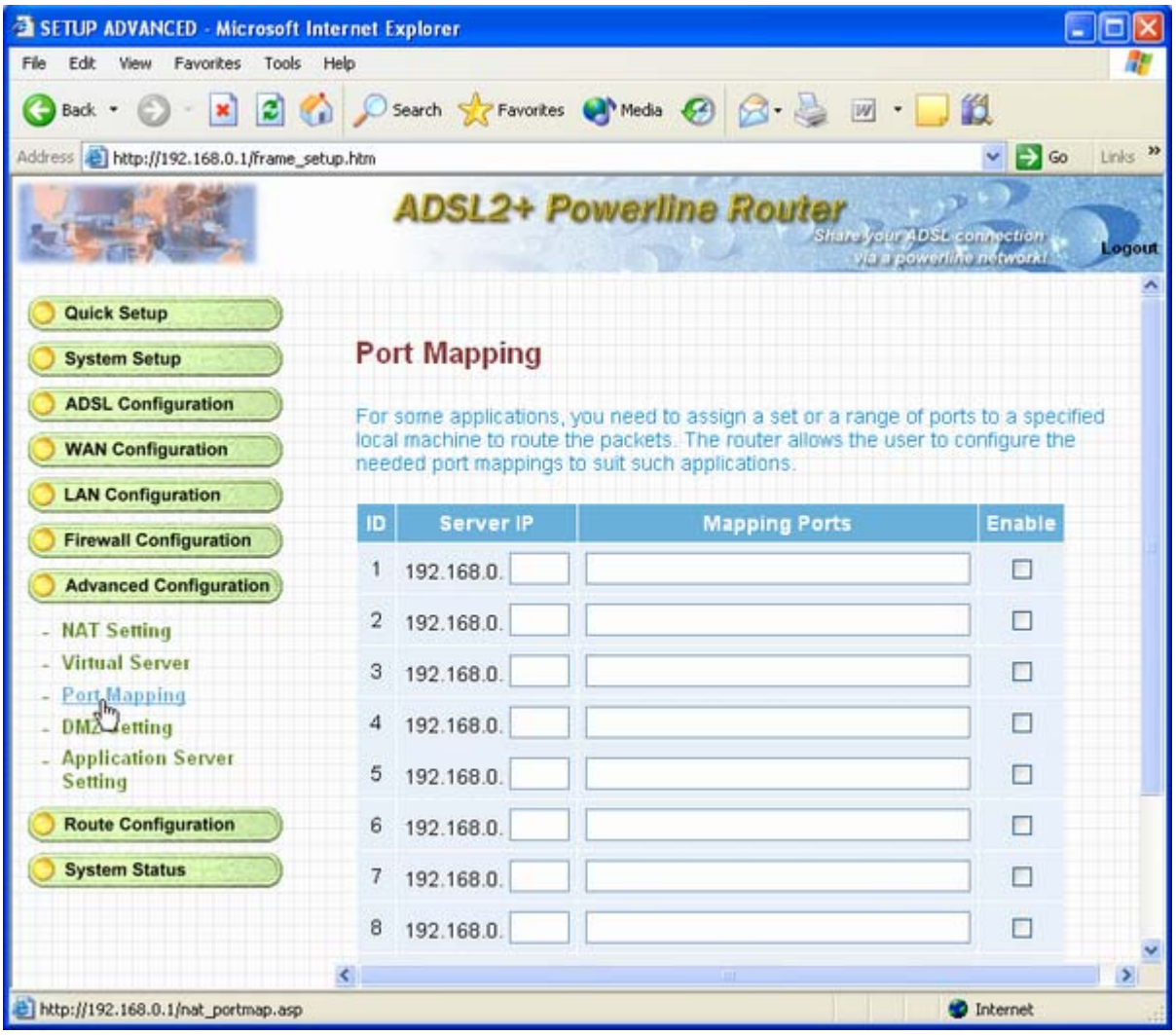
Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single public IP address or multiple public IP addresses. NAT can also prevent hacker attacks by mapping local addresses to public addresses for key services such as the Web or FTP.

3.8.2 Virtual Server


SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go Links
ADSL2+ Powerline Router
Share your ADSL connection via a powerline network!
Logout
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
Firewall Configuration
Advanced Configuration
- NAT Setting
- Virtual Server
- Port Mapping
- DMZ Setting
- Application Server Setting
Route Configuration
System Status
Virtual Server
You can configure the router as a virtual server so that remote users accessing services such as the Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port numbers), the router redirects the external service request to the appropriate server (located at another internal IP address).
ID Private IP Private Port Type Public Port Enable
1 192.168.0. TCP UDP
2 192.168.0. TCP UDP
3 192.168.0. TCP UDP
4 192.168.0. TCP UDP
5 192.168.0. TCP UDP
6 192.168.0. TCP UDP
http://192.168.0.1/nat_virtualser.asp
Internet

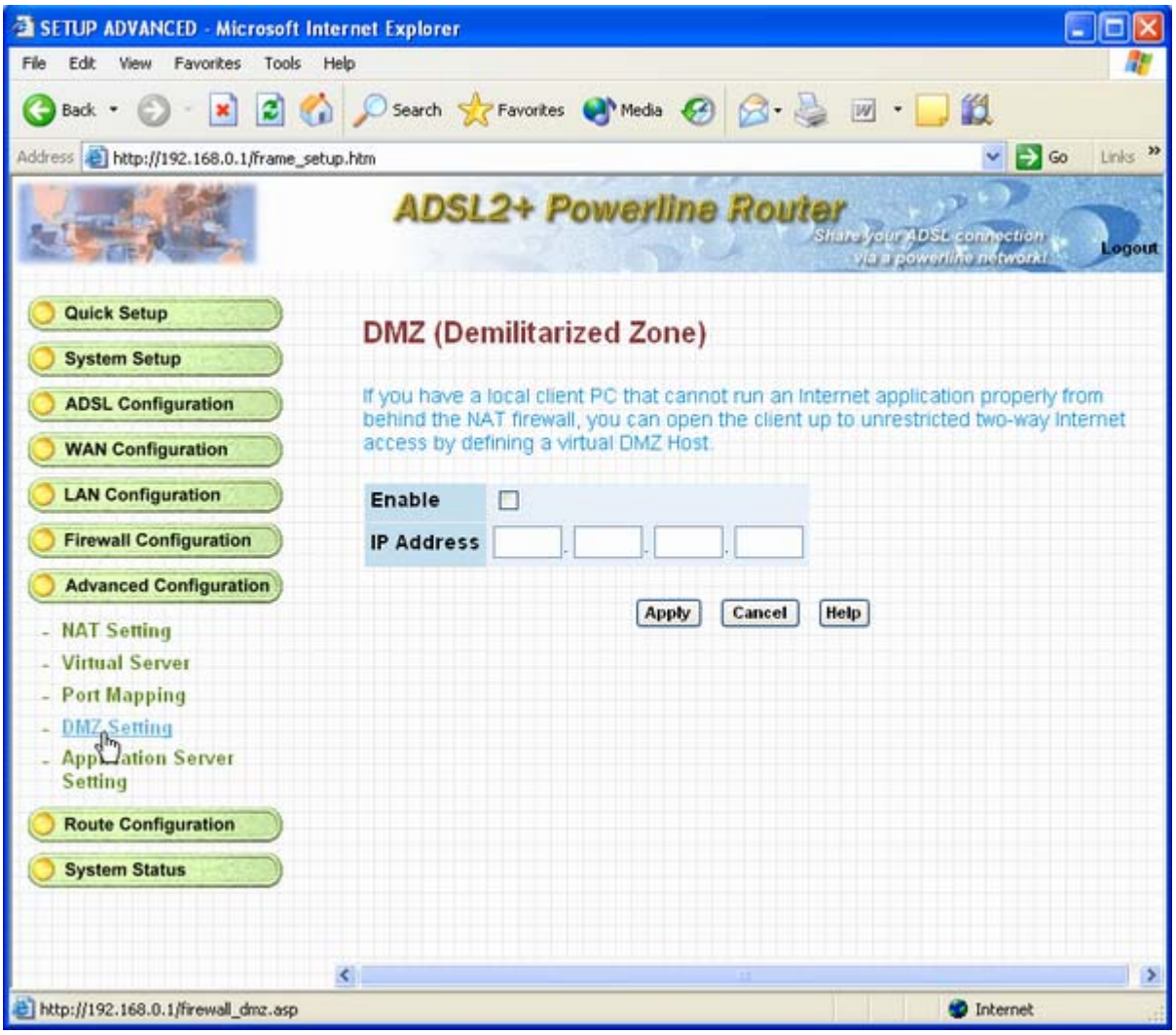
You can configure the router as a virtual server so that remote users accessing services such as the Web or FTP at your local site via public IP addresses can be automatically redirected to local servers configured with private IP addresses. In other words, depending on the requested service (TCP/UDP port numbers), the router redirects the external service request to the appropriate server (located at another internal IP address).

3.8.3 Port Mapping



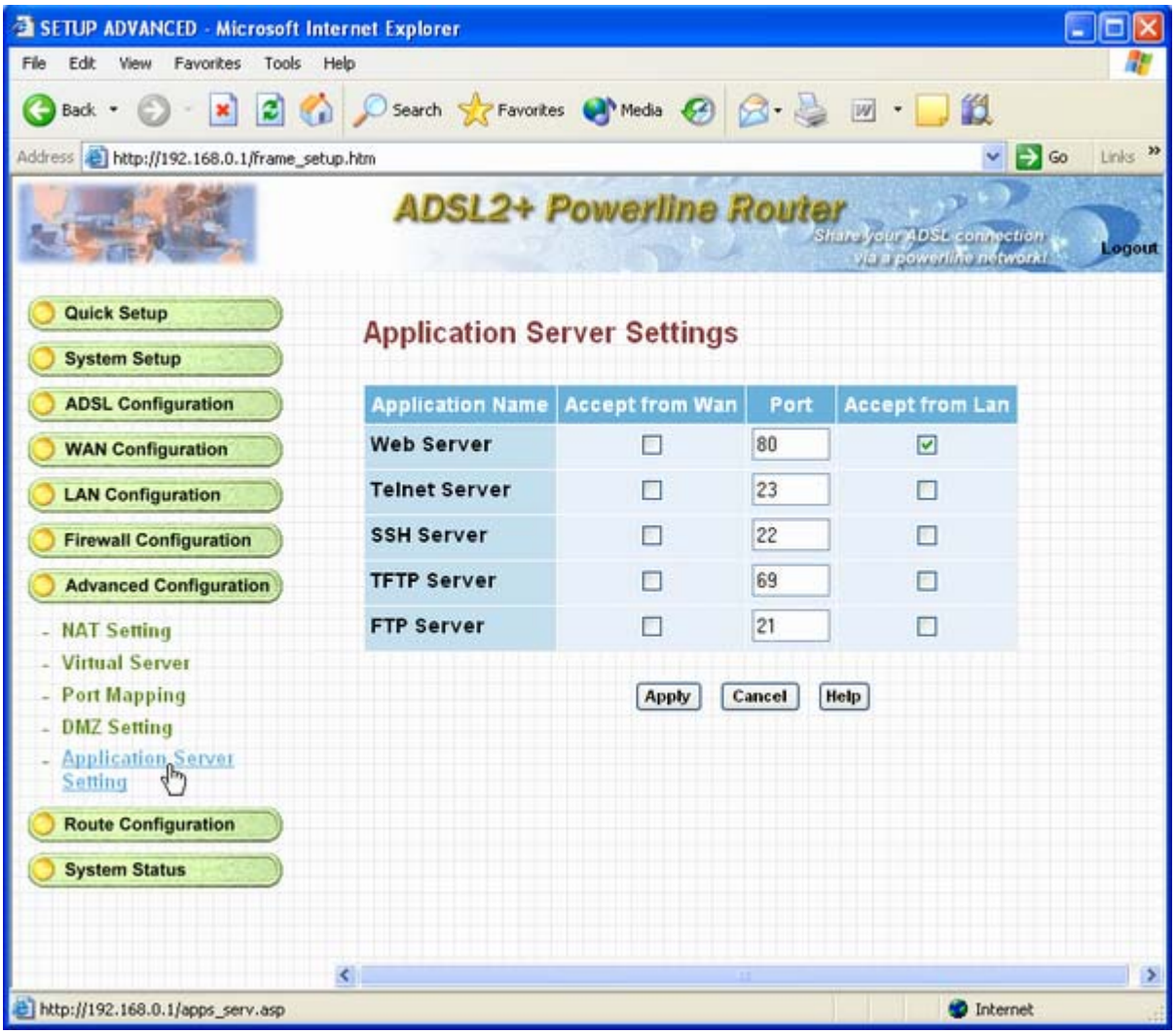
For some applications, you need to assign a set or a range of ports (example 4000-5000) to a specified local machine to route the packets. The router allows the user to configure the needed port mappings to suit such applications.

3.8.4 DMZ Setting



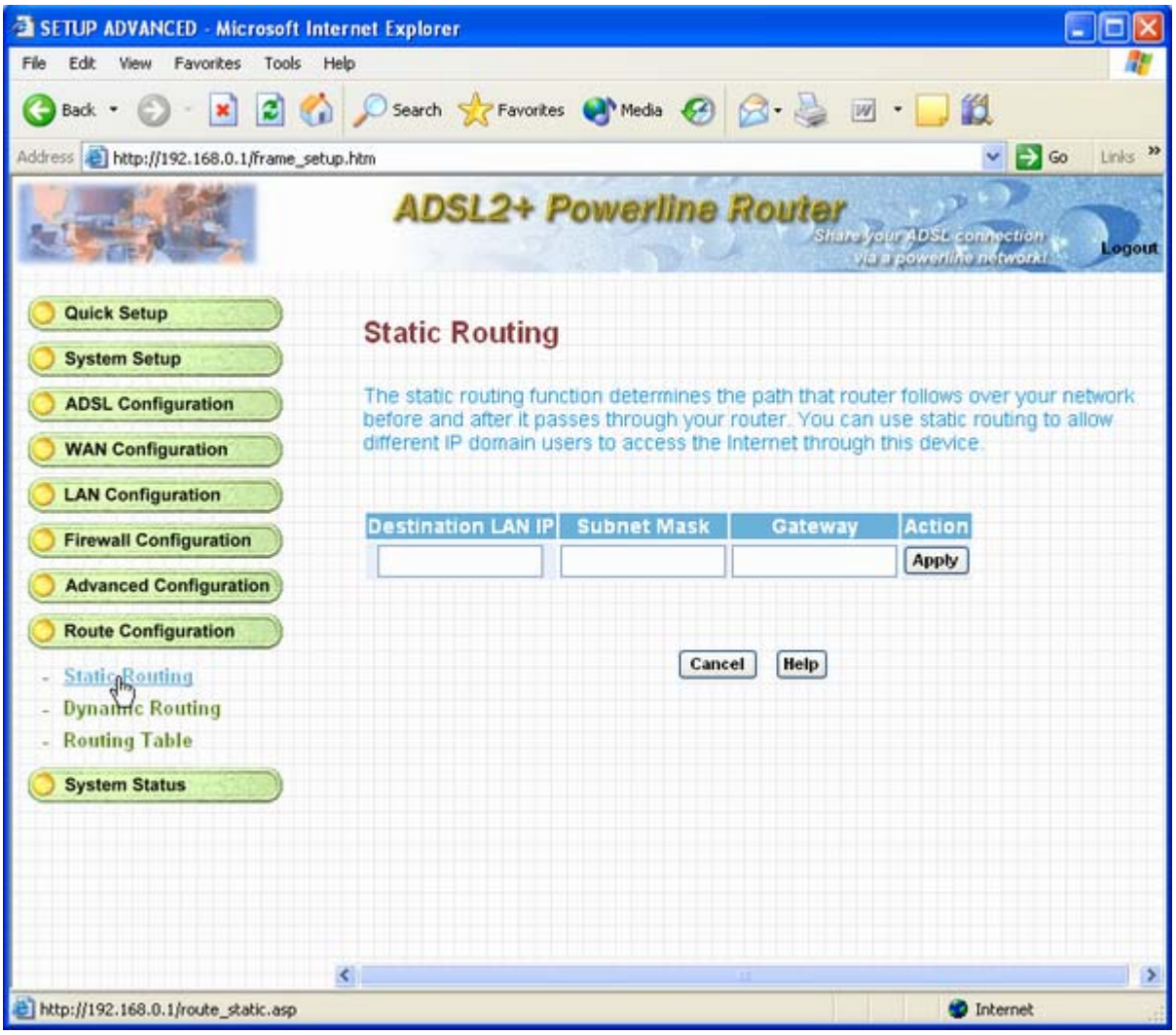
If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, you can open the client up to unrestricted two-way Internet access by defining a virtual DMZ Host.

3.8.5 Application Server Settings



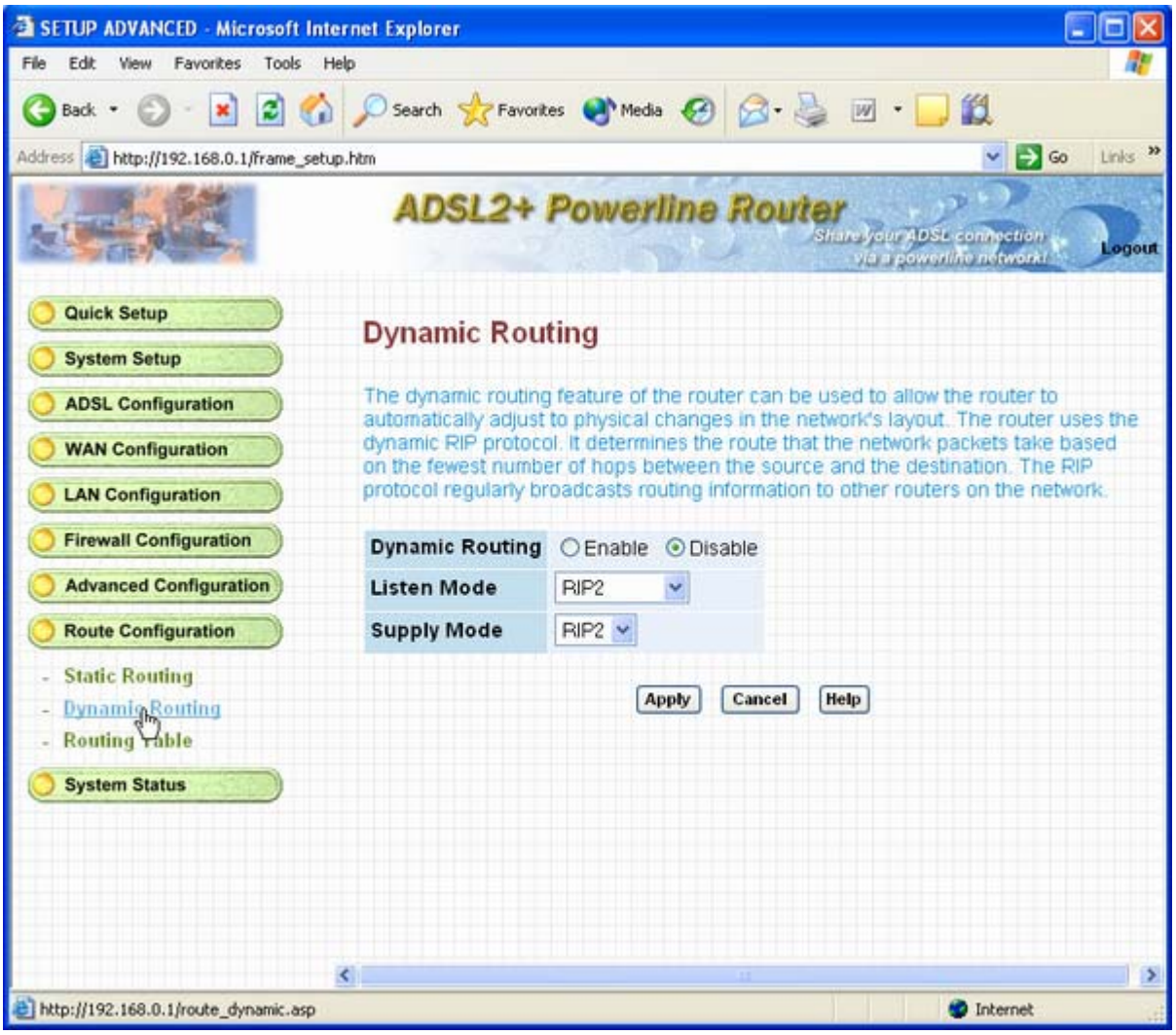
Supports WEB, Telnet, SSH, TFTP and FTP server.

3.9.1 Static Routing



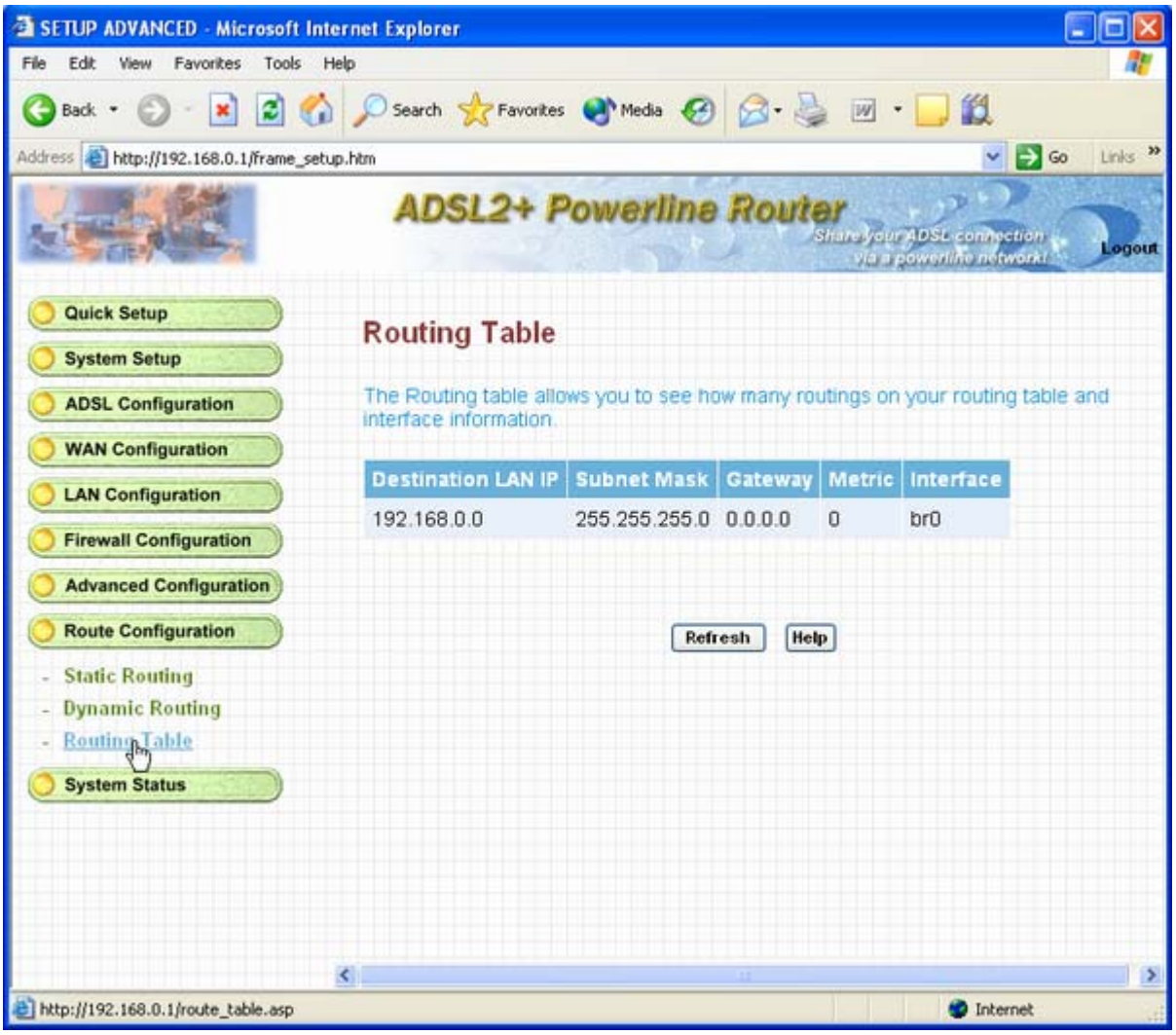
The static routing function determines the path that router follows over your network before and after it passes through your router. You can use static routing to allow different IP domain users to access the Internet through this device.

3.9.2 Dynamic Routing


SETUP ADVANCED - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/frame_setup.htm
Go Links
ADSL2+ Powerline Router
Share your ADSL connection via a powerline network!
Logout
Quick Setup
System Setup
ADSL Configuration
WAN Configuration
LAN Configuration
Firewall Configuration
Advanced Configuration
Route Configuration
- Static Routing
- Dynamic Routing
- Routing Table
System Status
Dynamic Routing
The dynamic routing feature of the router can be used to allow the router to automatically adjust to physical changes in the network's layout. The router uses the dynamic RIP protocol. It determines the route that the network packets take based on the fewest number of hops between the source and the destination. The RIP protocol regularly broadcasts routing information to other routers on the network.
Dynamic Routing Enable Disable
Listen Mode RIP2
Supply Mode RIP2
Apply Cancel Help
http://192.168.0.1/route_dynamic.asp
Internet

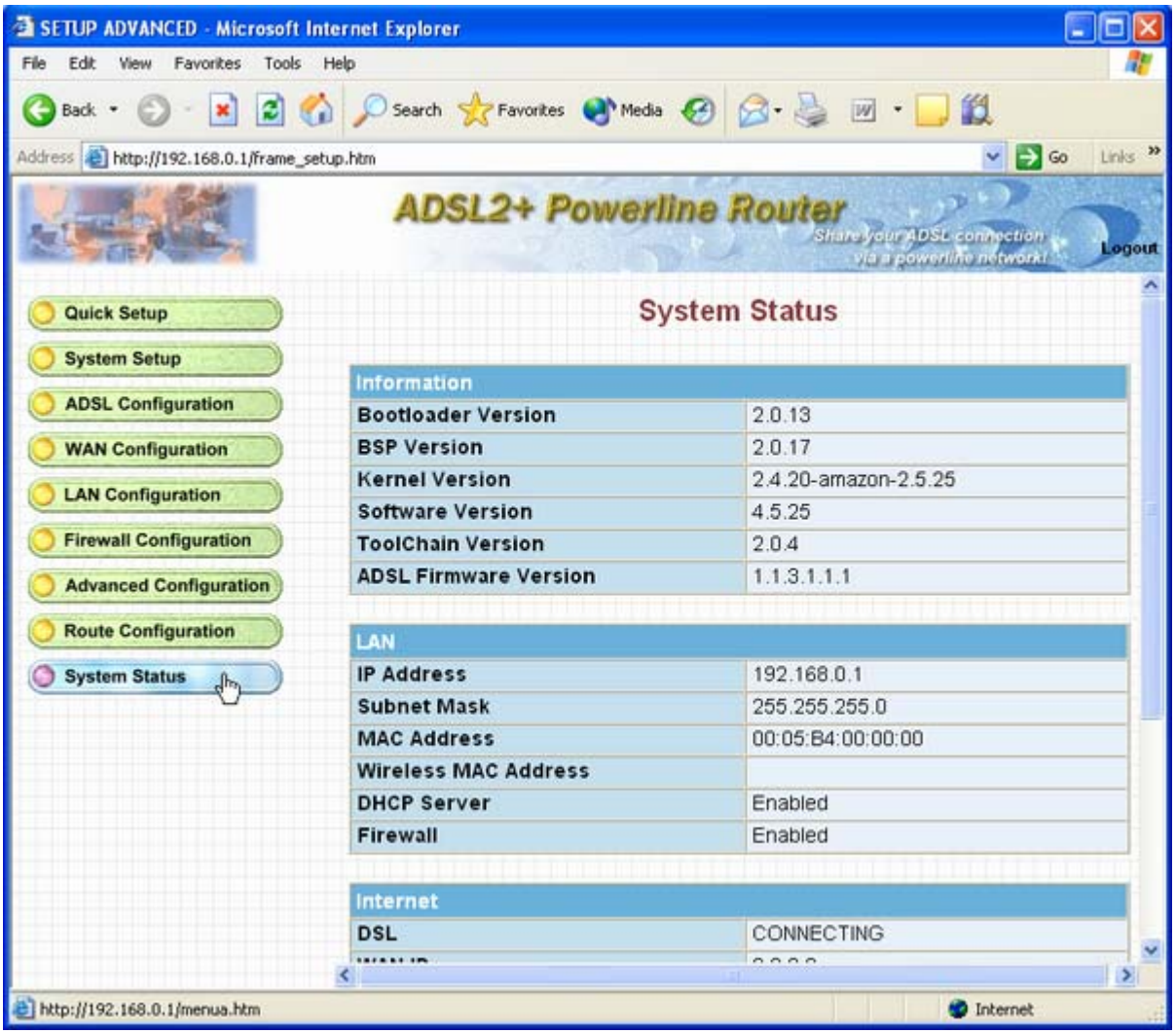
The dynamic routing feature of the router can be used to allow the router to automatically adjust to physical changes in the network's layout. The router uses the dynamic RIP protocol. It determines the route that the network packets take based on the fewest number of hops between the source and the destination. The RIP protocol regularly broadcasts routing information to other routers on the network.

3.9.3 Routing Table



The Routing table allows you to see how many routings on your routing table and interface information.

3.10.1 System Status

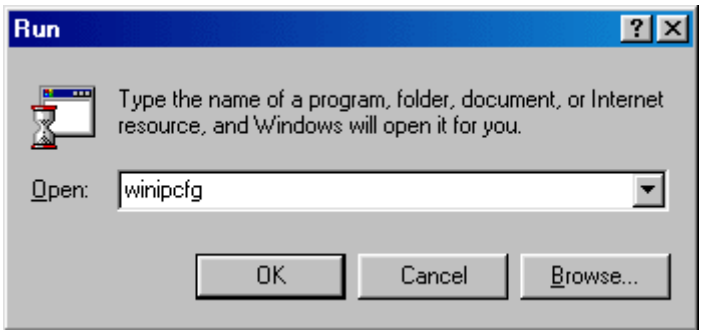


The System Status page shows the WAN, LAN and router's firmware version.

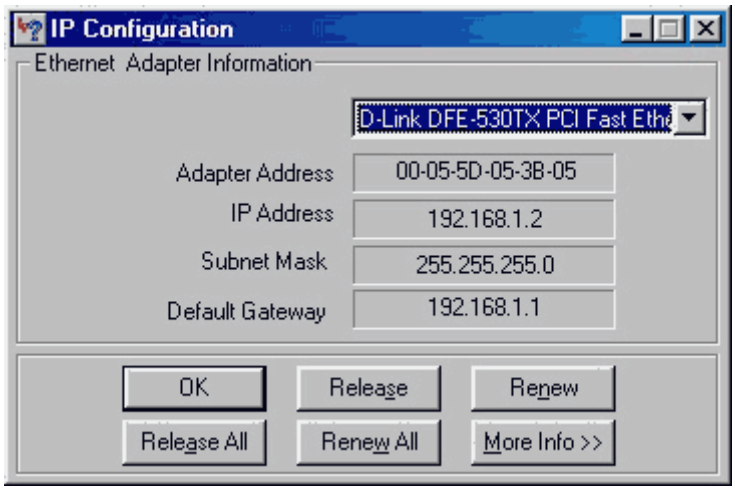
3.11.1 TCP/IP Settings for Windows Operating System

1. How can I find my IP Address in Windows 95, 98, or Me?

- Click on **Start**, then click on **Run**.
- The Run Dialogue Box will appear. Type **winipcfg** in the window as shown then click OK



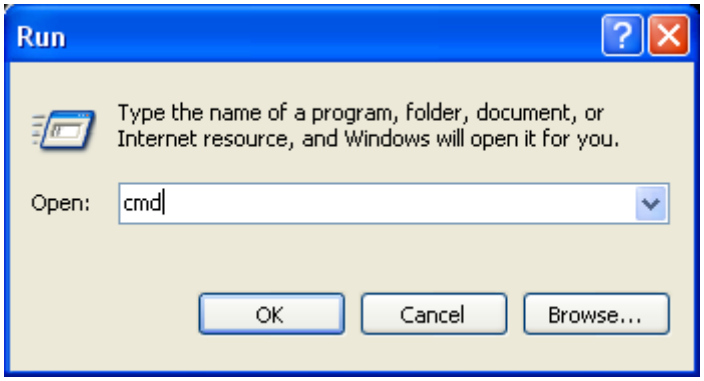
- The **IP Configuration** window will appear, displaying your **Ethernet Adapter Information**.
- Select your adapter from the drop down menu.
- If you do not see your adapter in the drop down menu, your adapter is not properly installed.



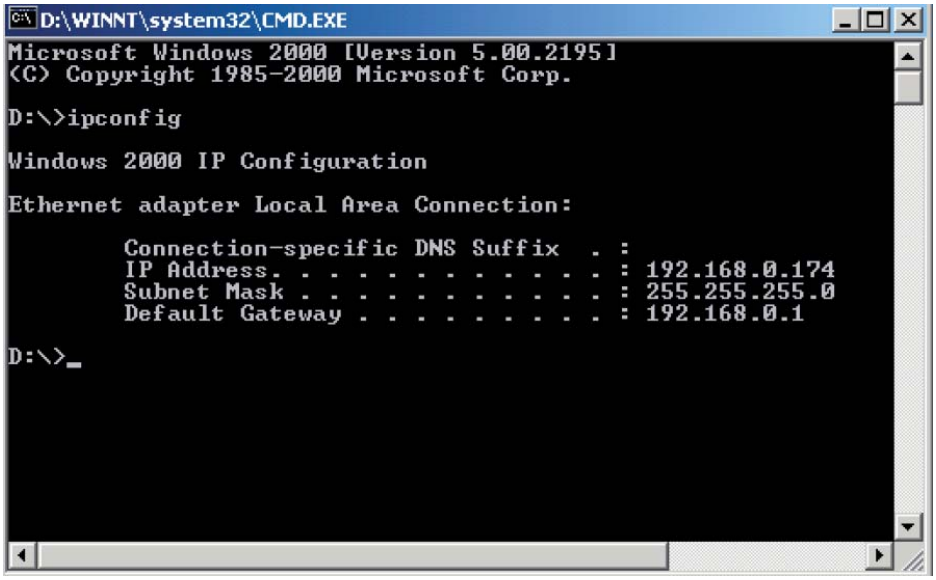
- After selecting your adapter, it will display your IP Address, subnet mask, and default gateway.
- Click **OK** to close the IP Configuration window.

2. How can I find my IP Address in Windows 2000/XP?

- Click on **Start** and select **Run**.
- Type **cmd** then click **OK**.



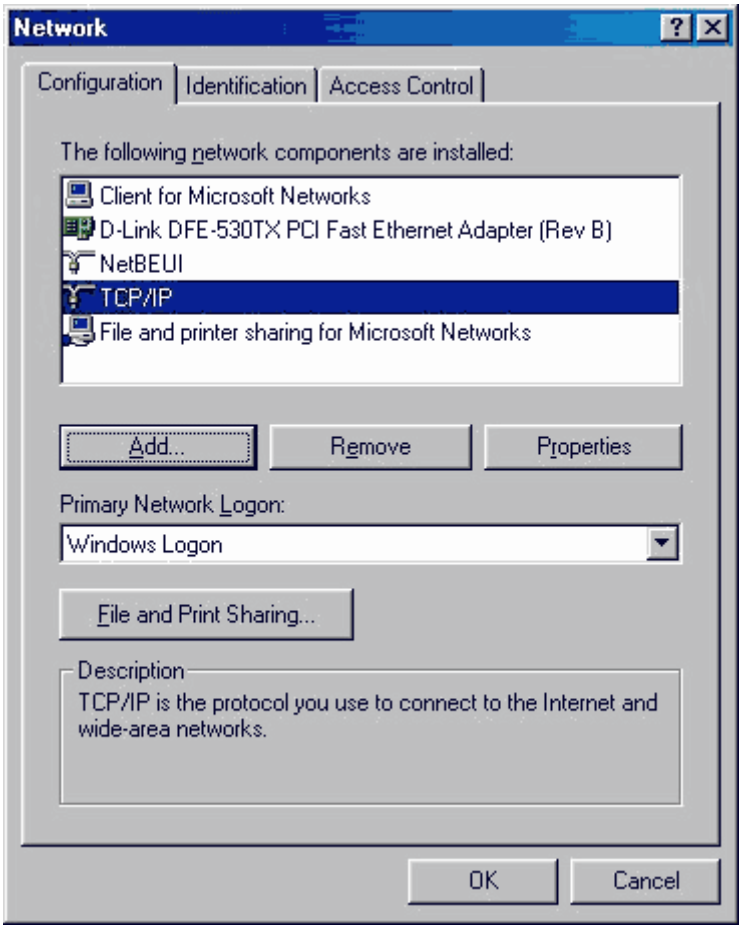
- From the Command Prompt, enter **ipconfig**. It will return your IP Address, subnet mask, and default gateway.


D:\WINNT\system32\CMD.EXE
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.
D:\>ipconfig
Windows 2000 IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 192.168.0.174
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.0.1
D:\>

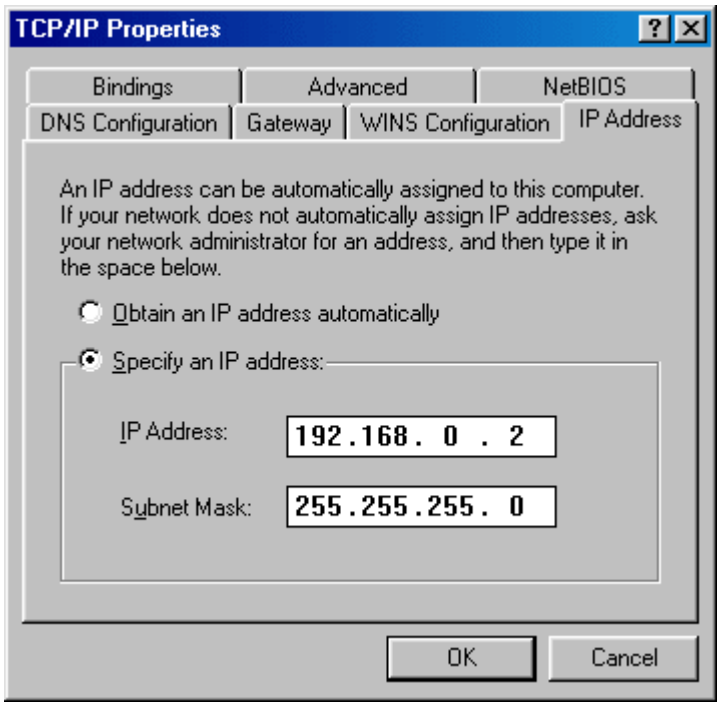
- Type exit to close the command prompt.
- Make sure you take note of your computer´s Default Gateway IP Address. The Default Gateway is the IP Address of the router. By default, it should be 192.168.0.1

3. How can I assign a Static IP Address in Windows 98/Me?

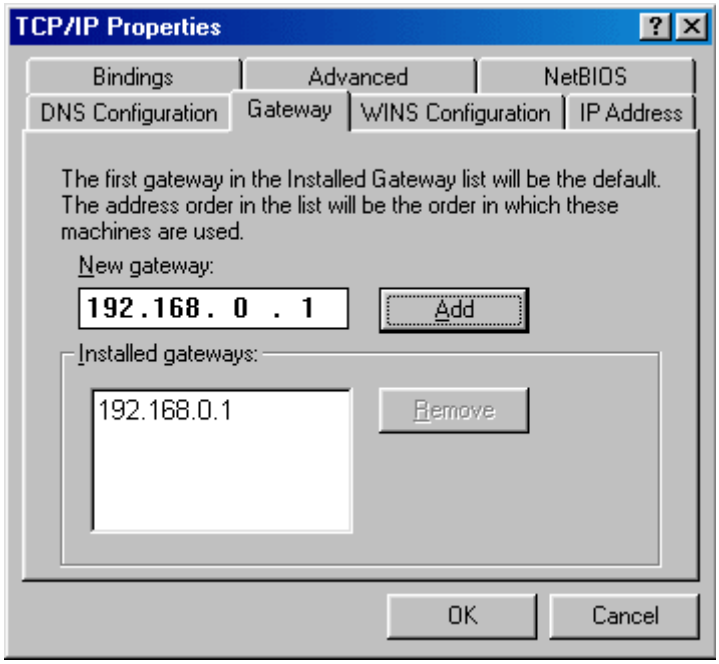
- From the desktop, right-click on the **Network Neighborhood** icon (Win ME - My Network Places) and select **Properties**.
- Highlight **TCP/IP** and click the **Properties** button. If you have more than 1 adapter, then there will be a TCP/IP “Binding” for each adapter. Highlight **TCP/IP > (your network adapter)** and then click **Properties**.



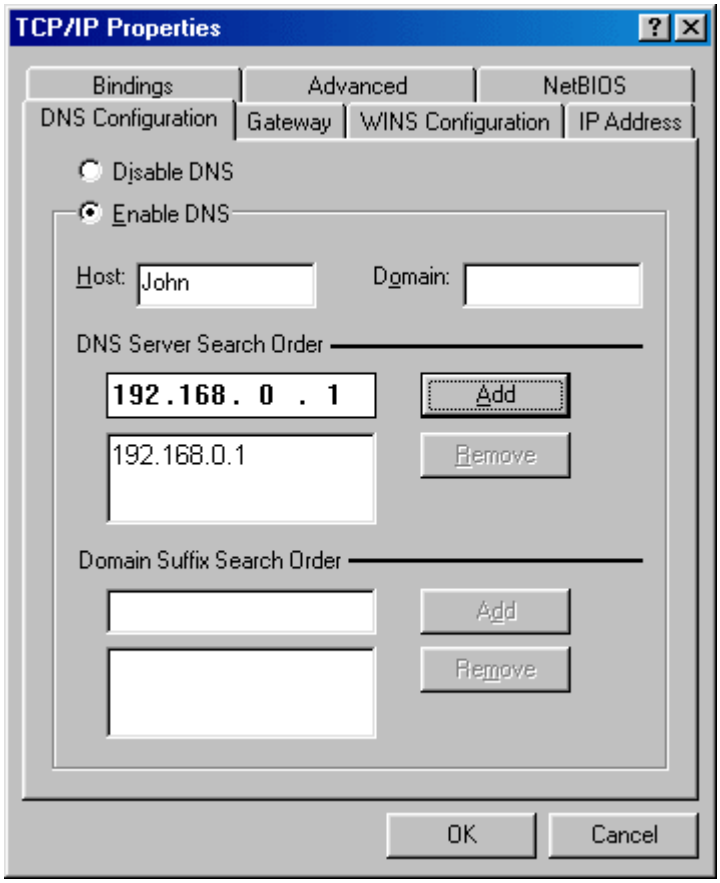
- Click **Specify an IP Address**.
- Enter in an IP Address that is on the same subnet as the LAN IP Address on your router. Example: If the router´s LAN IP Address is 192.168.0.1, make your IP Address 192.168.0.X where X is between 2-99. Make sure that the number you choose is not in use on the network.



- Click on the **Gateway** tab.
- Enter the LAN IP Address of your router here (192.168.0.1).
- Click **Add** when finished.



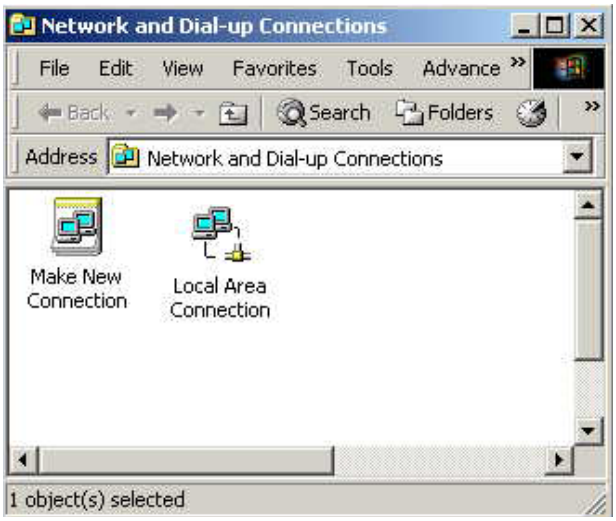
- Click on the **DNS Configuration** tab.
- Click **Enable DNS**. Type in a **Host** (can be any word). Under DNS server search order, enter the LAN IP Address of your router (192.168.0.1). Click **Add**.



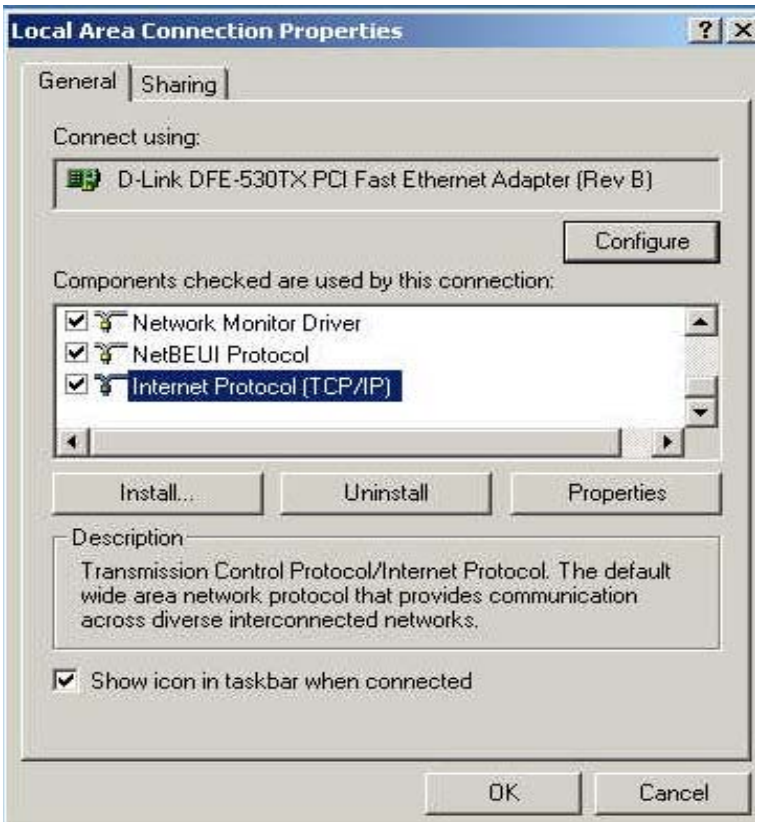
- Click **OK** twice.
- When prompted to reboot your computer, click **Yes**. After you reboot, the computer will now have a static, private IP Address.

4. How can I assign a Static IP Address in Windows 2000?

- Right-click on **My Network Places** and select **Properties**.
- Right-click on the **Local Area Connection** which represents your network card and select **Properties**.



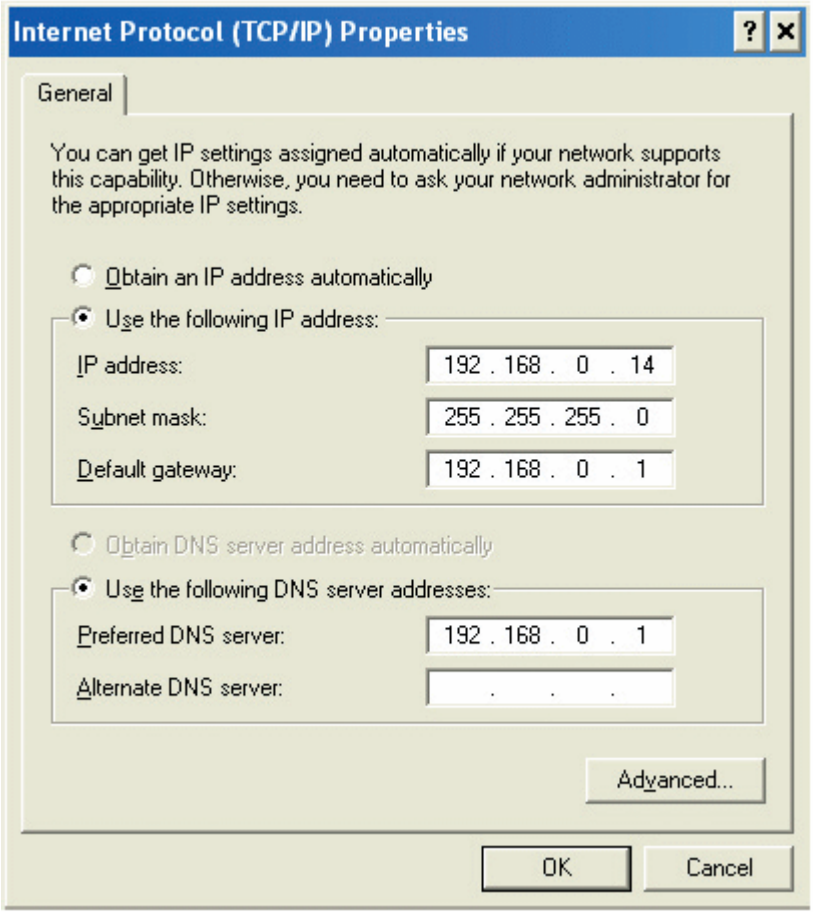
- Highlight **Internet Protocol (TCP/IP)** and click **Properties**.



- Click **Use the following IP Address** and enter an IP Address that is on the same subnet as the LAN IP Address on your router. Example: If the router´s LAN IP Address is 192.168.0.1, make your IP Address 192.168.0.X where X = 2-99. Make sure that the number you choose is not in use on the network.
- Set the **Default Gateway** to be the same as the LAN IP Address of your router (192.168.0.1).
- Set the **Primary DNS** to be the same as the LAN IP address of your router (192.168.0.1).
- **The Secondary DNS** is not needed or enter a DNS server from your ISP.
- Click **OK** twice. You may be asked if you want to reboot your computer. Click **Yes**.

5. How can I assign a Static IP Address in Windows XP?

- Click on **Start > Control Panel > Network and Internet Connections > Network connections**.
- See the steps for assigning a static IP address in Windows 2000 and continue from there.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 0 . 14
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 0 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 192 . 168 . 0 . 1
Alternate DNS server:
Advanced...
OK
Cancel

- Access the Web management. Open your Web browser and enter the IP Address of your router device in the address bar. This should open the login page for the Web management. Follow instructions to login and complete the configuration.

Chapter 4. Powerline Networking Utility

Note. The ADSL2+ Powerline Router can auto detect the other powerline bridges which plug in the same power circuit, you don't need to use this powerline utility except you want to encryption all the powerline devices as the same group or you can not access the other computers .

Introduction of Configuration Utility

The Configuration Utility for Windows OS enables the user to find Powerline Ethernet devices on the Powerline network, measures data rate performance, ensures privacy, performs diagnostics and secures Powerline networks.

4.1 Configuration Utility Setup

4.1.1 Installation of the Utility

Please verify that no other Powerline Management Utilities are installed before installing this product. If other utilities are installed, uninstall them and restart before installing this software.

To install, insert the Windows OS Configuration Utility Setup utility CD-ROM into the computer's CD-ROM drive. The Setup utility shall run automatically. Alternatively this can also be done manually by double clicking the setup.exe file on the CD. The CD will launch an installation utility similar to the one shown in *Figure 1*.

Click the **Next** button to continue.

Powerline Ethernet Adapter - InstallShield Wizard
Powerline Ethernet
HOME NET
Welcome to the InstallShield Wizard for Powerline Ethernet Adapter
The InstallShield(R) Wizard will install Powerline Ethernet Adapter on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

Figure 1: Install Shield Screen

4.2 Windows Configuration Utility

In order to run the utility, double-click the utility icon. *Figure 2* shows the main screen of the configuration utility. This screen shot shows a Powerline Ethernet device connected as a local device and other Powerline Ethernet devices as remote devices.

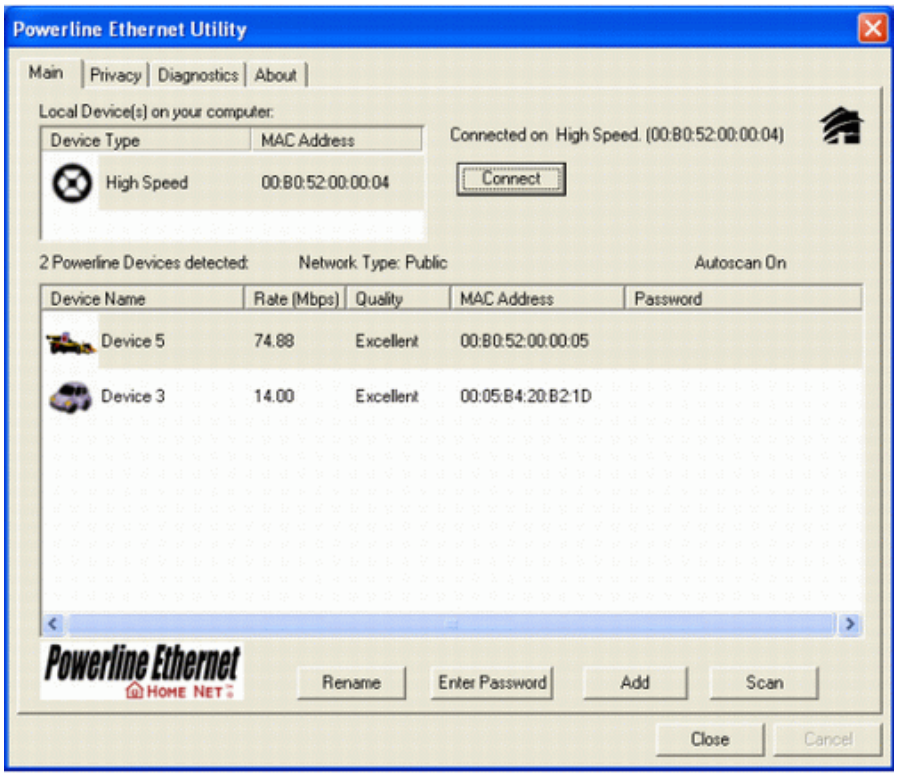


Figure 2: Main Screen with High-Speed Powerline Ethernet device Local

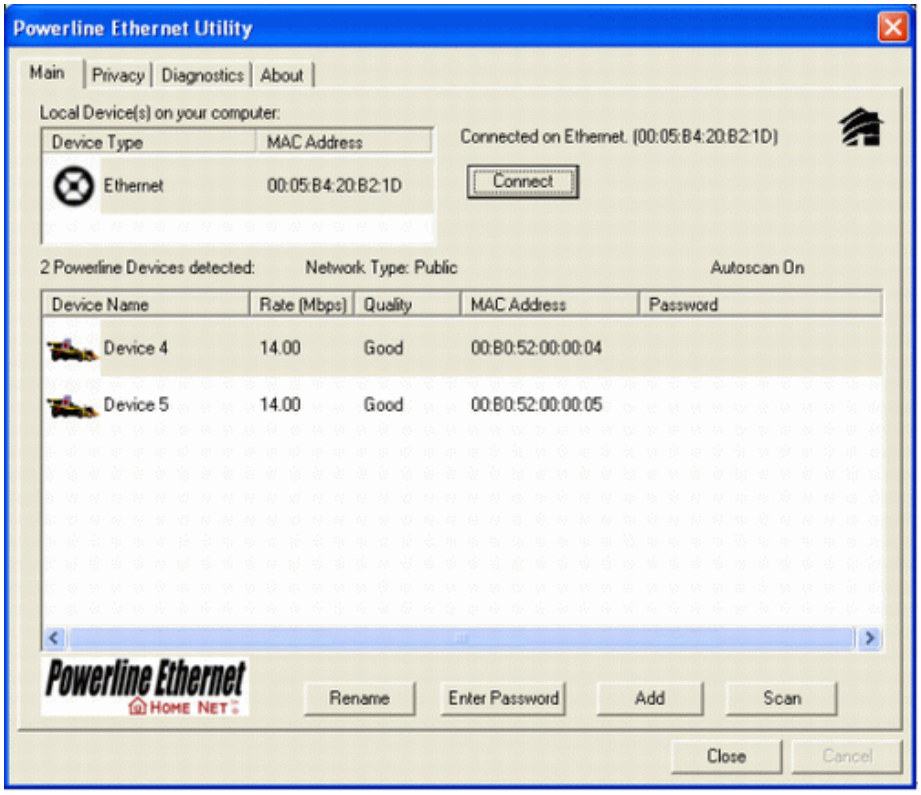


Figure 3 : Main Screen with Low-Speed Powerline Ethernet device Local

4.3 User Interface

4.3.1 Main Screen

The **Main** screen essentially provides a list of all Powerline Ethernet devices logically connected to the computer where the utility is running.The top panel shows all local Powerline Ethernet devices found connected to the computer's NIC (Network Interface Card). In most cases, only one device will be seen. In situations where there are more than one device connected, such as a USB and also an Ethernet device, the user may click to select the one to manage through and then click the **Connect** button to its right. The status area above the button indicates that your PC is connected to that same device. Once connected to the chosen local device, the utility will automatically scan the power line periodically for any other Powerline Ethernet devices. If no local Powerline Ethernet devices are discovered, the status area above the connect button will indicate that accordingly. *Figure 4* illustrates the presence of two local devices in the computer.

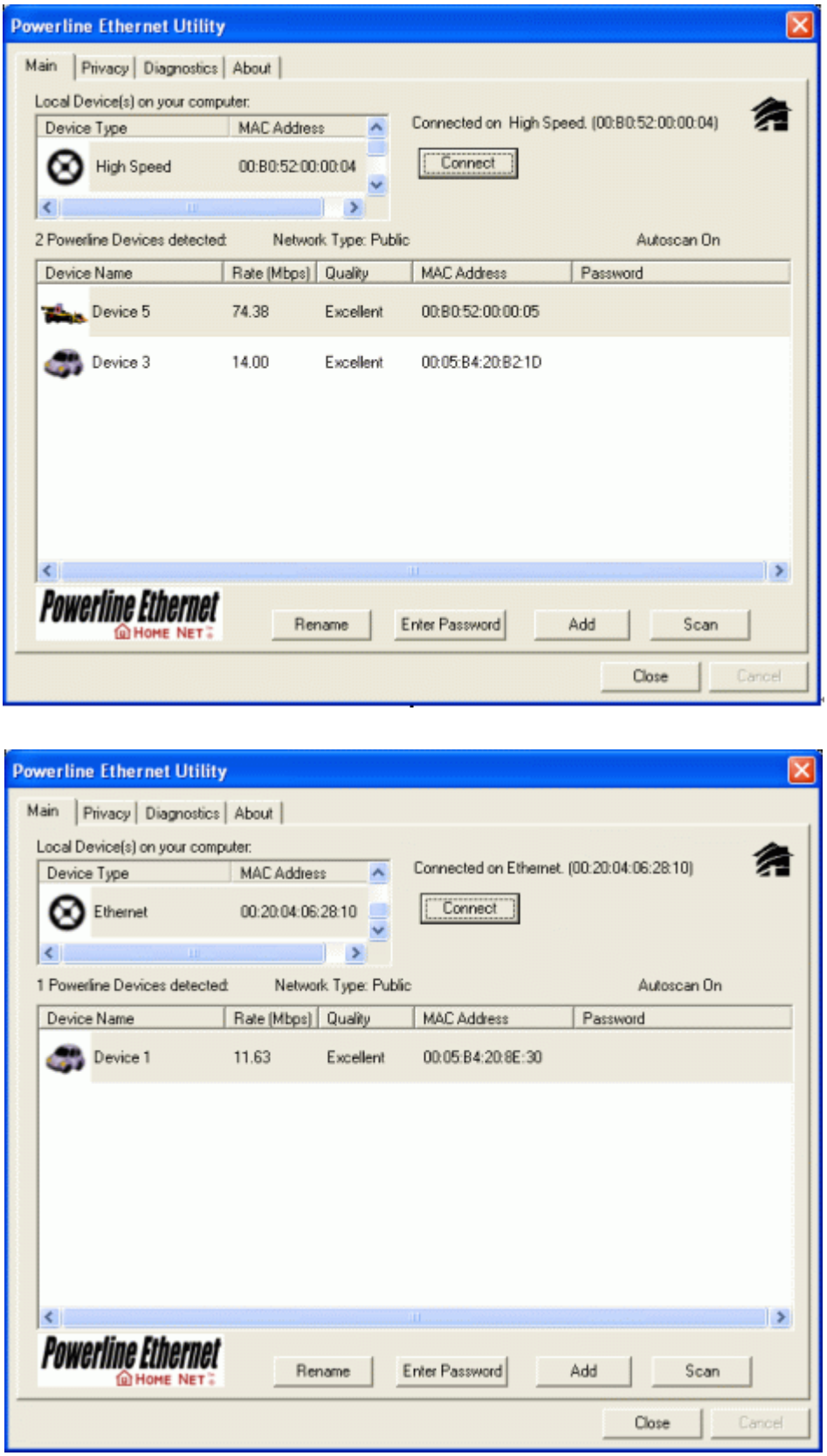


Figure 4: Multiple Local Device Connection

The **lower panel** displays all the Powerline Ethernet devices, discovered on the current logical network (remote devices). Displayed immediately above this panel is the number of remote devices found, the type of logical network (Public or Private), and a message area that reports connectivity and scan status. The following information is displayed for each of the devices discovered that appear in the lower panel:

Device Name column shows the default device name, which may be user re-defined. A user may change the name by clicking on the name and editing in-place, or by using the rename button. An icon is optionally shown with the name. A distinction in icons is made between low-speed and high-speed devices (14Mbps and 85Mbps). By default, the icon is displayed with the name.

MAC Address column shows the device's MAC address.

Password column shows the user-supplied device password (initially left blank).
A user may enter the password by using the Set Password button. To set the **Password** of the device (required when creating a private network), first select the device by clicking on its name in the lower panel and then click on the Enter Password button .A dialog box will appear as shown in Figure 5 to type the password. The selected device name is shown above the field for entering the password. Hit OK after entering the new password. A confirmation box will appear if the password was entered correctly. If a device is not found, the user will be notified and suggestions to resolve common problems will be presented.

Figure 5: Set Device Password

The **Add** button is used to add a remote device to your network that is not on the displayed list in the lower panel, for example, a device currently on another logical network. Users are advised to locate the passwords for all devices they wish to manage and add them to the local logical network by clicking on the Add button. A dialog box will appear as seen below. The dialog box allows the user to enter both a device name and the password. A confirmation box will appear if the password was entered correctly and if the device was found. If a device is not found, the user will be notified and suggestions to resolve common problems will be presented.

Figure 6: Add Remote Device

Note: The device must be present on the power line (plugged in) in order for the password to be confirmed and added to the network. If the device could not be located, a warning message will be shown.

The **Scan** button is used to perform an immediate search of the Powerline Ethernet devices connected to the computer. By default the utility automatically scans every few seconds and updates the display. A typical screen after naming and supplying passwords might appear as in *Figure 7*.

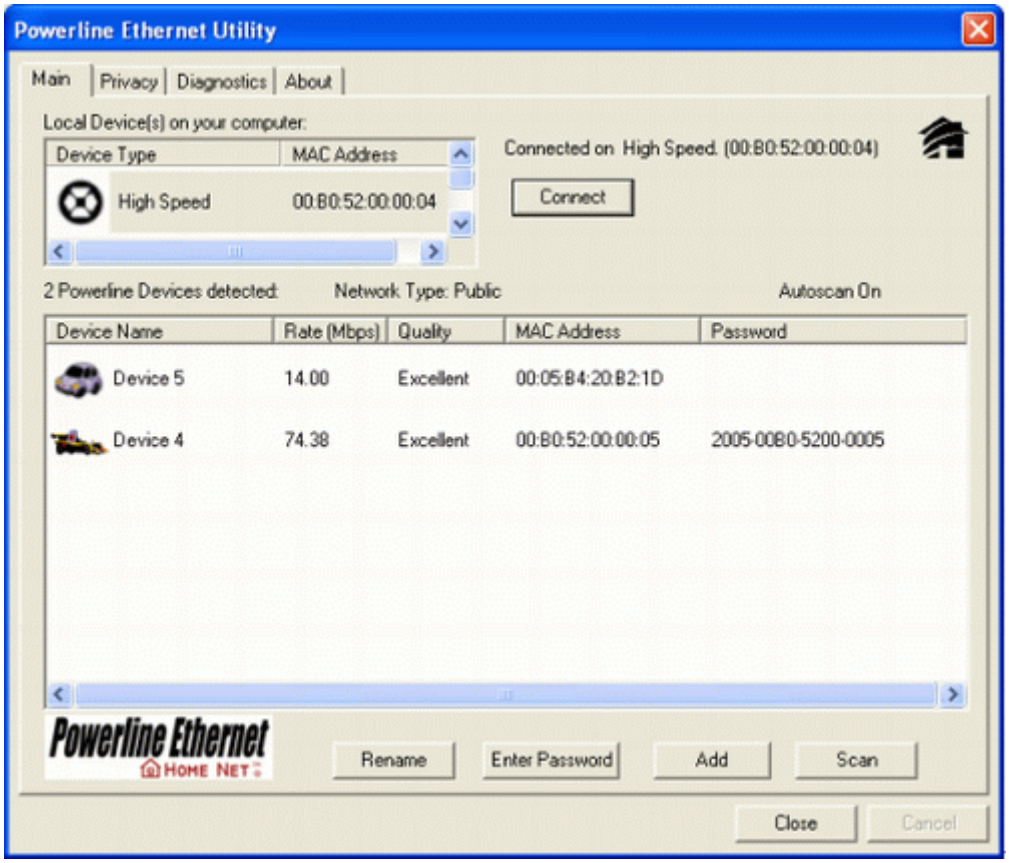


Figure 7: Main Screen of the Configuration Utility

4.3.2 Privacy Screen

The Privacy dialog screen provides a means for managing the local network and providing additional security. All Powerline Ethernet devices are shipped using a default logical network (network name), which is normally **“HomePlug”** . The **Privacy** dialog screen allows user to make the network private by changing the network name (network password) of devices. The user can always reset a Powerline Ethernet network to the universal one (public) by entering “HomePlug” as the network name or by clicking on the **Use Default** button.

Note : Changing the network name to any other name other than HomePlug will show the network type on the main screen as Private.

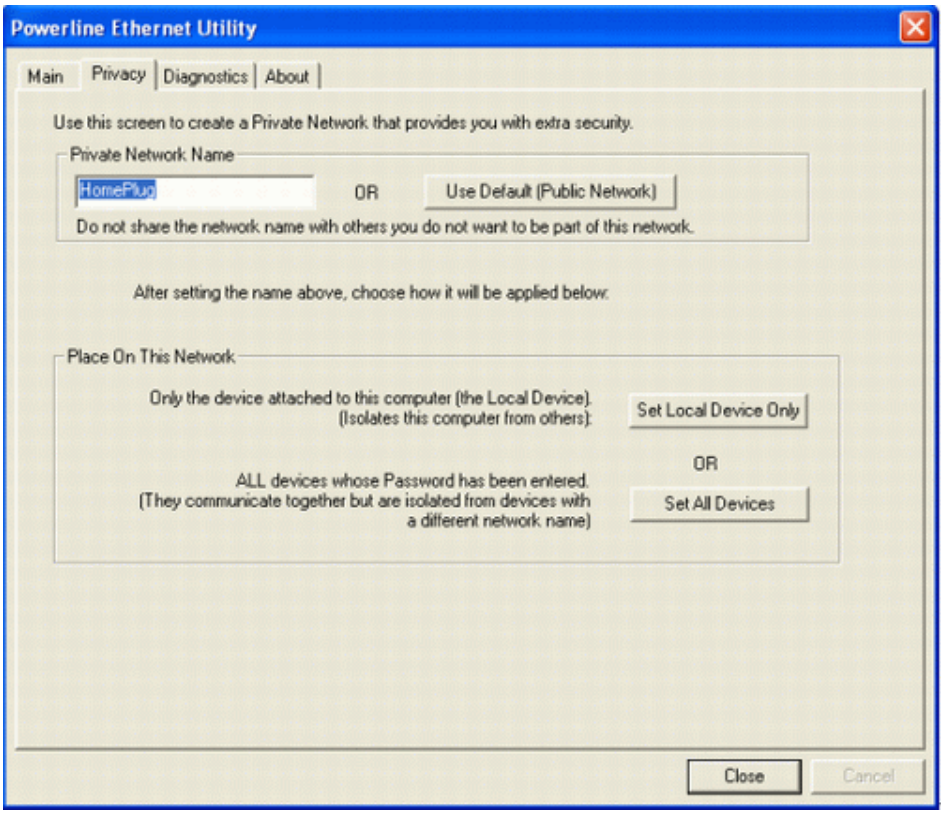

Powerline Ethernet Utility
Main
Privacy
Diagnostics
About
Use this screen to create a Private Network that provides you with extra security.
Private Network Name
HomePlug
OR
Use Default (Public Network)
Do not share the network name with others you do not want to be part of this network.
After setting the name above, choose how it will be applied below:
Place On This Network
Only the device attached to this computer (the Local Device).
(Isolates this computer from others):
Set Local Device Only
OR
ALL devices whose Password has been entered.
(They communicate together but are isolated from devices with a different network name)
Set All Devices
Close
Cancel

Figure 8: Privacy Screen

The **Set Local Device Only** button is used to change the network name (network password) for the local device only. After doing this, all the devices seen on the Main panel prior to this will no longer be able to communicate or respond to the computer, as they will be on a different logical network. Devices previously set up with the same logical network (same network name) will appear in the device list afterward selecting this option.

The **Set All Devices** button is used to change the logical network of all devices that appear on the Main panel. The user must have entered the device's Password in order to set it to the new logical network. A notification message will appear to report the success of this operation.

4.4 Diagnostics Screen

The **Diagnostics** screen shows system information and a history of all devices seen. The appearance is shown in *Figure 9*.

The **upper panel** shows technical data concerning software and hardware on the host computer used to communicate over Powerline Ethernet Network. It shall include the following:

- Operating System Type/Version
- Host Network Name
- User Name
- MAC Address of all NICs (network interface card)
- Identify versions of all Driver DLLs and Libraries used (NDIS) and optionally
- Powerline Ethernet device chipset manufacturer name (85Mbps version Only)
- MAC Firmware Version (85Mbps version Only)
- Vendor name

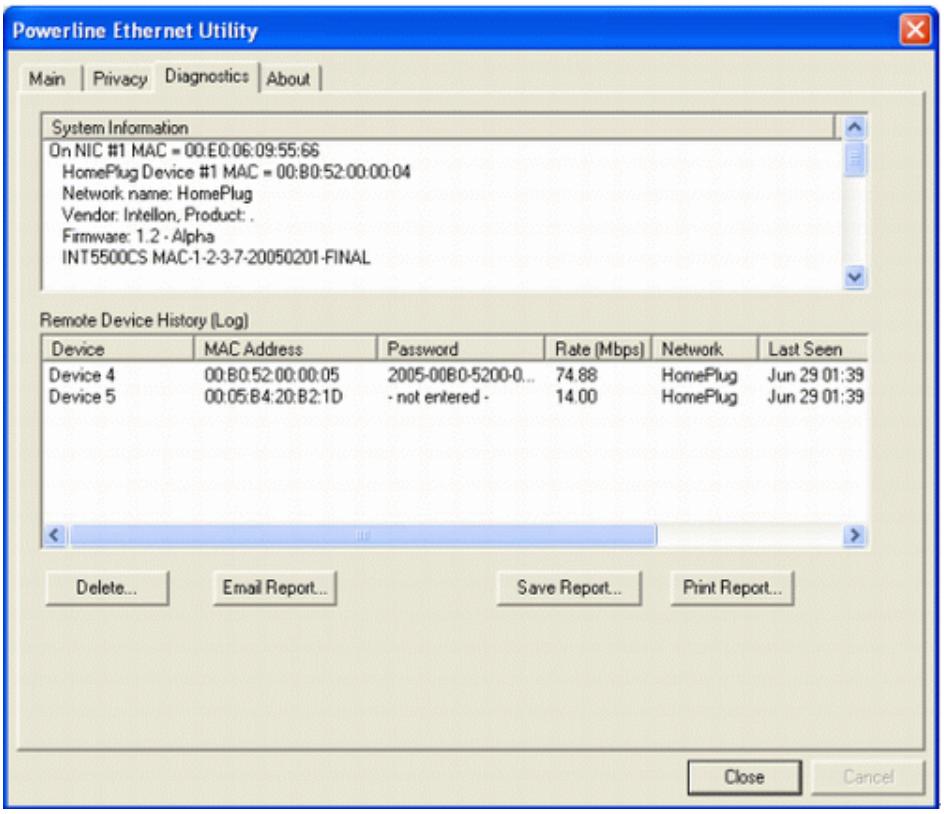


Figure 9: Diagnostics Screen

The **lower panel** contains a history of all remote devices seen on the computer, over time. Devices are shown here regardless of whether or not they are on the same logical network. Devices that are active on the current logical network will show a transfer rate in the Rate column; devices on other networks, or devices that may no longer exist are shown with an “?” in the Rate column. The following remote device information is available from the diagnostics screen:

- Adapter Alias Name
- Adapter MAC Address
- Adapter Password

- Adapter Last known rate
- Adapter Last Known Network
- HomePlug chipset manufacturer name
- Date device last scanned
- MAC Firmware Version (85Mbps version Only)

The diagnostics information displayed may be saved to a text file for later emailing to technical support of a manufacturer, or printed for reference during a technical support call. Devices no longer part of the network can be deleted using the delete button.

4.4.1 About Screen

The screen shows the software release date.

Figure 10: About dialog screen

4.4.2 Preferences

The lower part of the panel may display options for user preferences (such as turning the auto-scan feature on or off) as shown *Figure 10* above.

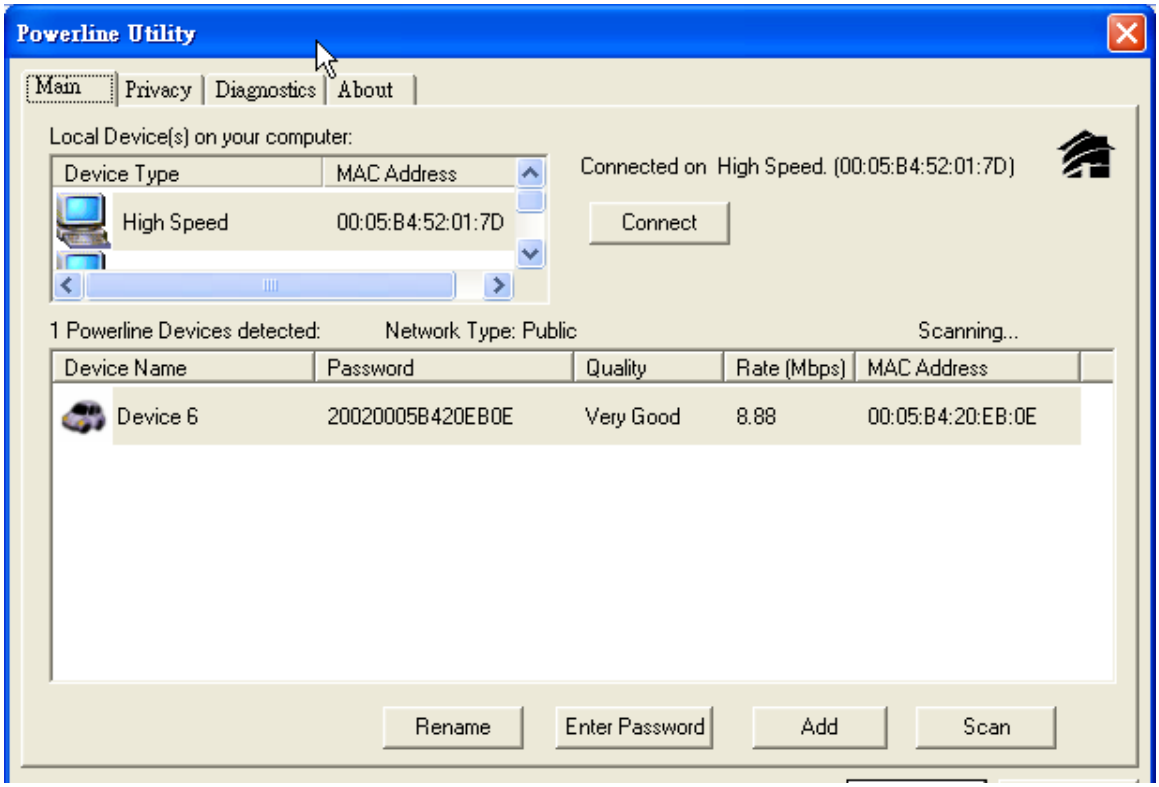
4.5 Troubleshooting

This section will introduce how to solve the connect problem for management remote Powerline devices.

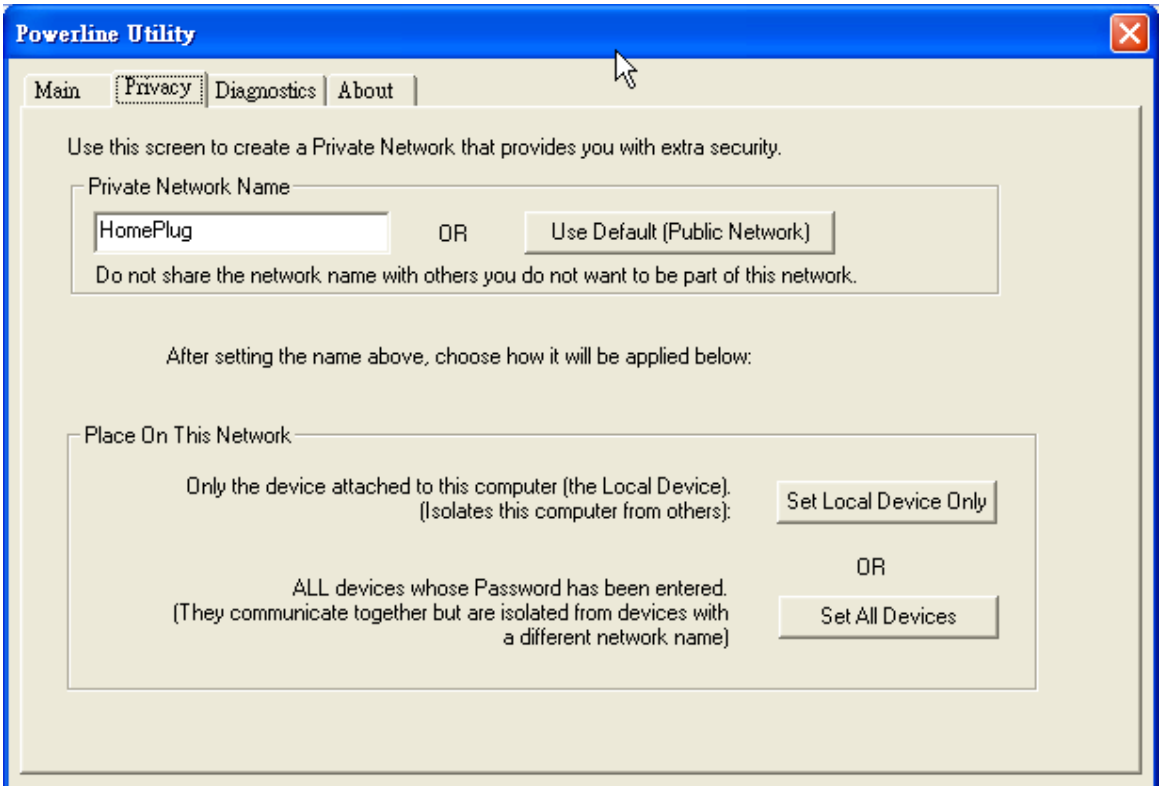
4.5.1 When the remote Powerline devices can not connect or access?

When you find that the computer can not connect to another or the remote Powerline device can not found by Powerline utility, please follow up the steps to check the problem.

Step 1: Open the utility to make sure you can or not access the device. You can check the **Main** tab for local or remote Powerline devices status. If you can not detect the remote Powerline devices, that's mean you or somebody change the Powerline network ID.



Step 2: Connect to the other Powerline bridge or router directly which can not detect at **Main** tab at step 1. On the **Privacy** page, you can change the Private Network name as the same name with other Powerline device or just press the **Use Default (Public Network**). Please press the **Set Local Device Only** button for change the network name. Please make sure the Private Network Name value must the same with the other Powerline device.


Powerline Utility
Main
Privacy
Diagnostics
About
Use this screen to create a Private Network that provides you with extra security.
Private Network Name
HomePlug
OR
Use Default (Public Network)
Do not share the network name with others you do not want to be part of this network.
After setting the name above, choose how it will be applied below:
Place On This Network
Only the device attached to this computer (the Local Device). (Isolates this computer from others):
Set Local Device Only
OR
ALL devices whose Password has been entered. (They communicate together but are isolated from devices with a different network name)
Set All Devices

Step 3: Connect the PC to the previous Powerline device, and you can find now the other Powerline device can be found at the **Main** tab.

Appendix A Glossary

Address mask

A bit mask used to select bits from an Internet address for subnet addressing. The mask is 32 bits long and selects the network portion of the Internet address and one or more bits of the local portion. sometimes called subnet mask.

AAL5

ATM Adaptation Layer - This layer maps higher layer user data into ATM cells, making the data suitable for transport through the ATM network.

ADSL

Asymmetric digital subscriber line.

ATM

Asynchronous Transfer Mode - A cell-based data transfer technique in which channel demand determines packet allocation.
ATM offers fast packet technology, real time; demand led switching for efficient use of network resources.

AWG

American Wire Gauge - The measurement of thickness of a wire.

Bridge

A device connects two or more physical networks and forwards packets between them. Bridges can usually be made to filter packets, that is, to forward only certain traffic. Related devices are: repeaters which simply forward electrical signals from one cable to the other, and full-fledged routers which make routing decisions based on several criteria.

Broadband

Characteristic of any network multiplexes independent network carriers onto a single cable. Broadband technology allows several networks to coexist on one single cable; traffic from one network does not interfere with traffic from another. Broadcast A packet delivery system where a copy of a given packet is given to all hosts attached to the network. Example: Ethernet.

CO

Central Office. Refers to equipment located at a Telco or service provider's office.

CPE

Customer Premises Equipment located in a user's premises

DHCP (Dynamic Host Configuration Protocol)

DHCP is software that automatically assigns IP addresses to client stations logging onto a TCP/IP network. DHCP eliminates having to manually assign permanent IP addresses to every device on your network. DHCP software typically runs in servers and is also found in network devices such as Routers.

DMT

Discrete Multi-Tone frequency signal modulation

Downstream rate

The line rate for return messages or data transfers from the network machine to the user's premises machine.

DSLAM

Digital Subscriber Line Access Multiplex

Dynamic IP Addresses

A dynamic IP address is an IP address that is automatically assigned to a client station (computer, printer, etc.) in a TCP/IP network. Dynamic IP addresses are typically assigned by a DHCP server, which can be a computer on the network or another piece of hardware, such as the Router. A dynamic IP address may change every time your computer connects to the network.

Encapsulation

The technique used by layered protocols in which a layer adds header information to the protocol data unit (PDU) from the layer above. As an example, in Internet terminology, a packet would contain a header from the physical layer, followed by a header from the network layer (IP), followed by a header from the transport layer (TCP), followed by the application protocol data.

Ethernet

One of the most common local area network (LAN) wiring schemes, Ethernet has a transmission rate of 10 Mbps.

FTP

File Transfer Protocol. The Internet protocol (and program) used to transfer files between hosts.

Hop count

A measure of distance between two points on the Internet. It is equivalent to the number of gateways that separate the source and destination.

HTML

Hypertext Markup Language - The page-coding language for the World Wide Web.

HTML browser

A browser used to traverse the Internet, such as Netscape or Microsoft Internet Explorer.

http

Hypertext Transfer Protocol - The protocol used to carry world-wide-web (www) traffic between a www browser computer and the www server being accessed.

ICMP

Internet Control Message Protocol - The protocol used to handle errors and control messages at the IP layer. ICMP is actually part of the IP protocol.

Internet address

An IP address is assigned in blocks of numbers to user organizations accessing the Internet. These addresses are established by the United States Department of Defense's Network Information Center. Duplicate addresses can cause major problems on the network, but the NIC trusts organizations to use individual addresses responsibly. Each address is a 32-bit address in the form of x.x.x.x where x is an eight- bit number from 0 to 255. There are three classes: A, B and C, depending on how many computers on the site are likely to be connected.

Internet Protocol (IP)

The network layer protocol for the Internet protocol suite

IP address

The 32-bit address assigned to hosts that want to participate in a TCP/IP Internet.

ISP

Internet service provider - A company allows home and corporate users to connect to the Internet.

MAC

Media Access Control Layer - A sub-layer of the Data Link Layer (Layer 2) of the ISO OSI Model responsible for media control.

MIB

Management Information Base - A collection of objects can be accessed via a network management protocol, such as SNMP and CMIP (Common Management Information Protocol).

NAT

Network Address Translation - A proposal for IP address reuse, where the local IP address is mapped to a globally unique address.

NVT

Network Virtual Terminal

PAP

Password Authentication Protocol

PORT

The abstraction used by Internet transport protocols to distinguish among multiple simultaneous connections to a single destination host.

POTS

Plain Old Telephone Service - This is the term used to describe basic telephone service.

PPP

Point-to-Point-Protocol - The successor to SLIP, PPP provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits.

PPPoE

PPP over Ethernet is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

Remote server

A network computer allows a user to log on to the network from a distant location.

RFC

Request for Comments - Refers to documents published by the Internet Engineering Task Force (IETF) proposing standard protocols and procedures for the Internet. RFCs can be found at www.ietf.org..

Route

The path that network traffic takes from its source to its destination. The route a datagram may follow can include many gateways and many physical networks. In the Internet, each datagram is routed separately.

Router

A system responsible for making decisions about which of several paths network (or Internet) traffic will follow. To do this, it uses a routing protocol to gain information about the network and algorithms to choose the best route based on several criteria known as "routing metrics".

Routing table

Information stored within a router that contains network path and status information. It is used to select the most appropriate route to forward information along.

Routing Information Protocol

Routers periodically exchange information with one another so that they can determine minimum distance paths between sources and destinations.

SNMP

Simple Network Management Protocol - The network management protocol of choice for TCP/IP-based Internet.

SOCKET

(1) The Berkeley UNIX mechanism for creating a virtual connection between processes.
(2) IBM term for software interfaces that allow two UNIX application programs to talk via TCP/IP protocols.

Spanning-Tree Bridge Protocol (STP)

Spanning-Tree Bridge Protocol (STP) - Part of an IEEE standard. A mechanism for detecting and preventing loops from occurring in a multi-bridged environment. When three or more LAN's segments are connected via bridges, a loop can occur. Because a bridge forwards all packets that are not recognized as being local, some packets can circulate for long periods of time, eventually degrading system performance. This algorithm ensures only one path connects any pair of stations, selecting one bridge as the 'root' bridge, with the highest priority one as identifier, from which all paths should radiate.

Spoofing

A method of fooling network end stations into believing that keep alive signals have come from and returned to the host. Polls are received and returned locally at either end

Static IP Addresses

A static IP address is an IP address permanently assigned to computer in a TCP/IP network. Static IP addresses are usually assigned to networked devices that are consistently accessed by multiple users, such as Server PCs, or printers. If you are using your Router to share your cable or DSL Internet connection, contact your ISP to see if they have assigned your home a static IP address. You will need that address during your Router's configuration.

Subnet

For routing purposes, IP networks can be divided into logical subnets by using a subnet mask. Values below those of the mask are valid addresses on the subnet.

TCP

Transmission Control Protocol - The major transport protocol in the Internet suite of protocols provides reliable, connection-oriented full-duplex streams.

TFTP

Trivial File Transfer Protocol - A simple file transfer protocol (a simplified version of FTP) that is often used to boot diskless workstations and other network devices such as routers over a network (typically a LAN).

Telnet

The virtual terminal protocol in the Internet suite of protocols - Allows users of one host to log into a remote host and act as normal terminal users of that host.

Transparent bridging

So named because the intelligence necessary to make relaying decisions exists in the bridge itself and is thus transparent to the communicating workstations. It involves frame forwarding, learning workstation addresses and ensuring no topology loops exist (in conjunction with the Spanning-Tree algorithm).

UDP

User Datagram Protocol - A connectionless transport protocol that runs on top of TCP/IP's IP. UDP, like TCP, uses IP for delivery; however, unlike TCP, UDP provides for exchange of datagrams without acknowledgments or guaranteed delivery. Best suited for small, independent requests, such as requesting a MIB value from an SNMP agent, in which first setting up a connection would take more time than sending the data.

UNI signaling

User Network Interface signaling for ATM communications.

Virtual Connection (VC)

A link that seems and behaves like a dedicated point-to-point line or a system that delivers packets in sequence, as happens on an actual point-to-point network. In reality, the data is delivered across a network via the most appropriate route. The sending and receiving devices do not have to be aware of the options and the route is chosen only when a message is sent. There is no pre-arrangement, so each virtual connection exists only for the duration of that one transmission.

WAN

Wide area network - A data communications network that spans any distance and is usually provided by a public carrier (such as a telephone company or service provider).

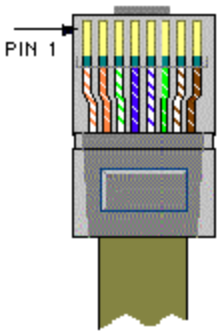
Appendix B Cabling / Connection

Network cables connect PCs in an Ethernet network Category 5, called "Cat5" for short is commonly used type of network cable today.

Cat 5 cables are tipped with RJ-45 connectors, which fit into RJ-45 port.

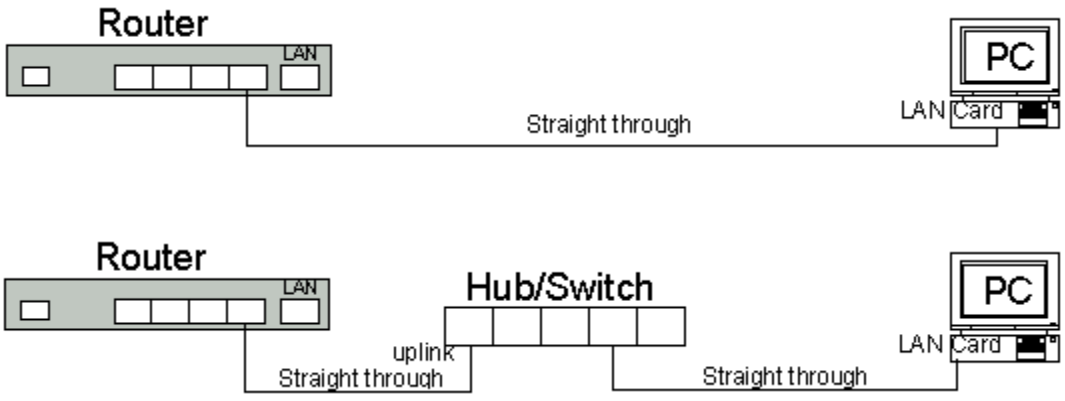
Straight-through vs. Crossover Cables:

Straight-through	
Wire	**Becomes**
1	1
2	2
3	3
6	6



Straight-through	
Wire	**Becomes**
1	1
2	2
3	3
6	6

LAN Connection:



To check LEDs light up when you finish connecting two pieces of hardware.

Declaration of Conformity

Equipment : ADSL2+ Powerline Router

Report No.: E951041

is herewith confirmed to comply with the requirements of its Harmonised Standards for CE Marking which have been set out in the Council Directive, and published as below:

1) The R&TTE Directive 1999/5/EC

2) The EMC Directives of 89/336/EEC, 92/31/EEC and 93/68/EEC;

For the evaluation of above mentioned Harmonised Standards, the following technical and test standards were applied:

1) EN 55022: 1998+A1 : 2001+A2: 2003 Class A

2) EN 61000-3-2 : 2000

3) EN 61000-3-3 : 1995+A1: 2001

4) EN 55024 : 1998+A1 : 2001+A2: 2003

EN 61000-4-2 : 1995+A1: 1998+A2: 2001

EN 61000-4-3 : 2002+A1: 2002

EN 61000-4-4 : 1995+A2: 2001

EN 61000-4-5 : 1995+A1: 2001

EN 61000-4-6 : 1996+A1: 2001

EN 61000-4-8 : 1993+A1: 2001

EN 61000-4-11 : 1994+A1: 2001

Declaration of Conformity

The following

Equipment : ADSL2+ Powerline Router

Report No.: S951004

is herewith confirmed to comply with the requirements set out in the Council Directive on the harmonization of the Laws of the Member States relating to electrical equipment designed for use within certain voltage limits(73/23/EEC).

For the evaluation of above mentioned Directives, the following standards were applied:

IEC 60950-1: 2001

EN 60950-1: 2001

Testing Laboratory:

PEP TECHNOLOGIES LTD.

12FL-3, NO.27-1, LANE 169, KANG NING ST., HSI CHIH CITY, TAIPEI HSIEN, TAIWAN, R.O.C.